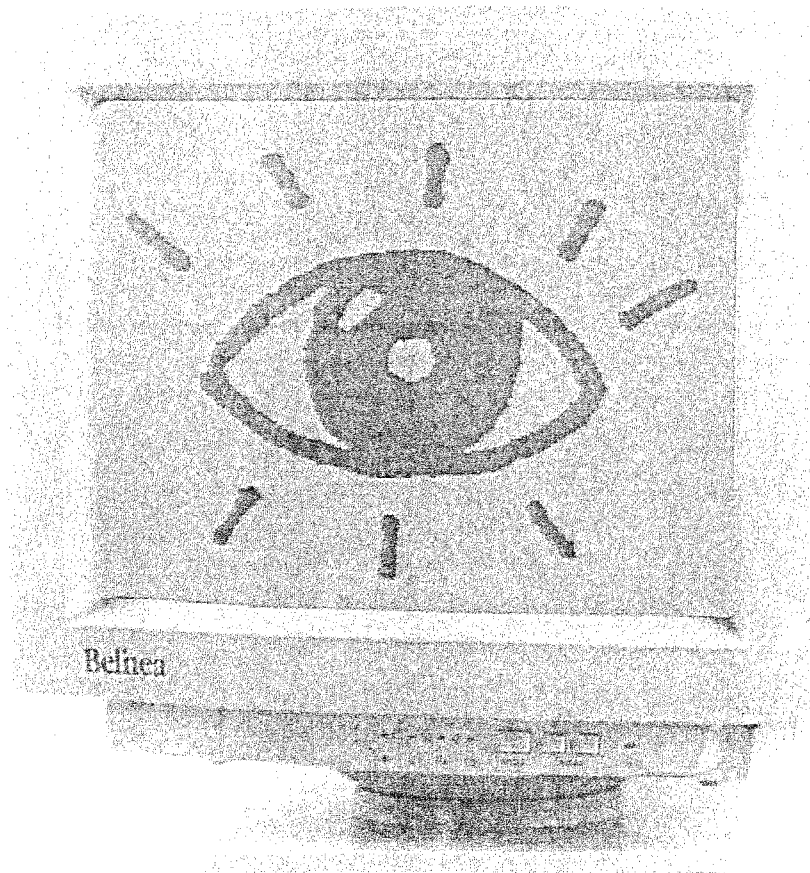




V17067

Belinea 10 40 10

Color Monitor Service Manual



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SERVICE MANUAL

14" SUPER-VGA COLOR MONITOR

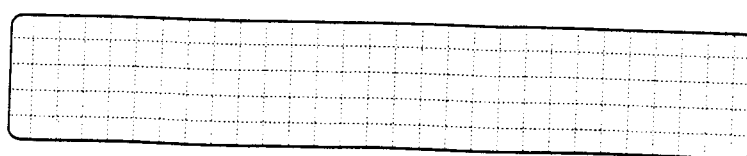
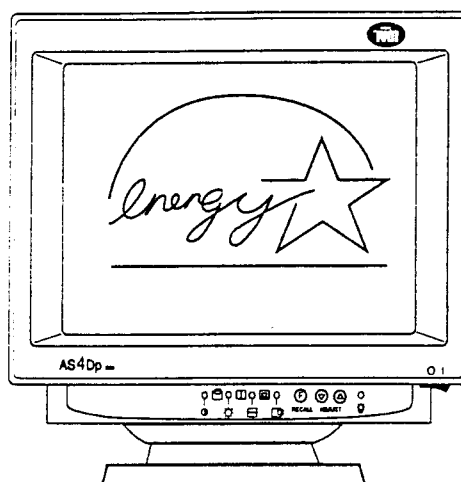
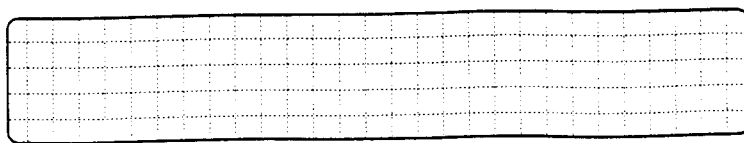


TABLE OF CONTENTS

• SAFETY SYMBOLS	1
• PRECAUTIONS	2
• FCC STATEMENT	3
• AUTOMATIC POWER SAVING DESCRIPTION	4
• SPECIFICATIONS	5
• USER CONTROLS	8
• ADJUSTMENT PROCEDURES	10
• PURITY & STAIC CONVERGENCE ADJUSTMENT	17
• BLOCK DIAGRAM	20
• TROUBLE SHOOTING CHART	22
• SERVICE COMPONENTS	39
• PARTS LIST	40
• PACKING PARTS	49
• RMA PRCEDURE	50
• PCBLAYOUT	53
• ASSEMBLY & DISASSEMBLY DIAGRAM	54
• CIRCUIT DIAGRAM	55



SAFETY SYMBOLS

The following safety symbols are used throughout this manual and in the instrument. Familiarize yourself with each of the symbols and its meaning before operating this instrument.



Indicate dangerous voltage is present.
Be extremely careful.

CAUTION

The CAUTION sign denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in damage to or destruction of the instrument. Do not proceed beyond a CAUTION sign until the indicated conditions are fully understood and met.

WARNING

The WARNING sign denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in injury or loss of life. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

PRECAUTIONS

1. To prevent electric shock, do not remove screw or power. There are no user-serviceable parts inside the monitor. Service should be done by a qualified service person. Do not remove the tilt/swivel base!
2. The input power source:
This monitor is designed to be suitable for power line voltage range from 100 VAC to 240 VAC.
3. The monitor is equipped with a three-pronged grounding plug which will only fit a grounded power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician.
4. Do not put the monitor or other heavy objects on the power supply cord. A damaged power cord may cause fire or electric shock.
5. Do not insert sharp objects into the monitor. They may cause fire or failure.
6. Do not allow liquids to fall into the cabinet.
7. To reduce eye fatigue, avoid using the display in direct sunlight or under bright lights.
8. Do not operate the monitor beyond the specified temperature and humidity range (see specifications).
9. For proper operation, keep the monitor adequately ventilated.
10. Keep the monitor away from strong magnetic fields produced by transformers, motors, fans, or other devices. If you find some parts of the monitor display discolored due to magnetic fields generated by electrical facilities or appliances, turn off the monitor for at least 15 minutes. The degaussing circuit of the monitor will eliminate the discoloration.
11. Do not remove the monitor from its swivel base while the power is on, or it may cause discoloration. If discoloration occurs, follow the above mentioned procedure for an adjustment.
12. If the monitor does not operate properly, turn the power switch off and then unplug the monitor.
13. When irregular AC Voltage is applied, a protective circuit will turn off the monitor (the power indicator will also be turned off). If this happens, turn off the power switch, and wait at least 30 seconds before turning it on again.
14. The Plug on the power supply cord is used as the disconnect device, the socket-outlet shall be installed near the equipment and shall be easily accessible.

FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protections against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

Warning A shielded-type power cord is required in order to meet FCC emission limits and also to prevent an interference to the nearby radio and television reception. It is essential that only the supplied power cord should be used.

Use only shielded cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could make void your authority to operate the equipment.

CANADIAN DEPARTMENT OF COMMUNICATIONS COMPLIANCE STATEMENT

This equipment does not exceed Class B limits per radio noise emissions for a digital apparatus, set out in the Radio Interference Regulation of the Canadian Department of Communications. Operation in a residential area may cause unacceptable interference to radio and TV reception requiring the owner or operator to take whatever steps necessary to correct the interference.

AUTOMATIC POWER SAVING DESCRIPTION

Introduction

"Green Concept" has been prevailing throughout the information market in the world these years. EPA (Environmental Protection Agency) stipulates that all information products sold to the United States should meet the requirement of environmental protection.

Also VESA (Video Electronics Standard Association) DPMS compliant is provided for energy efficient operation. Below are the description.

Features

1. When monitor is powered on without connecting signal cable to PC or monitor powered on after connecting to a power off PC, the monitor will be at sleep mode. In this case, LED indication will be flickering.
2. When monitor signal cable is connected to a power on PC, it will stay at "on" state until PC is switched to power saving mode or PC is powered off or monitor is disconnected to a PC. At this case monitor will automatically transfer to a power saving mode.
3. When PC is recovered from power saving mode (by touching keyboard, mouse etc.) the monitor will recover to normal operation too.

Caution. Power saving is applicable only if your PC provides this function.

Indicator

Green indicates normal operation.

Flickering LED indicates power saving (sleep) mode.

Power Consumption

1. The power consumption is reduced to less than 30W at power saving mode and meets United States "EPA" energy star requirement.
2. To comply with VESA power saving standard, the power is reduced to less than 25W at suspend / standby modes and is less than 5W at sleep mode.

Note DPMS is a Display Power Management Signaling standard proposed by VESA committees.

SPECIFICATIONS

1. Application: Typical or data / graphic display device for a personal computer application.
2. Mechanical Description

DIMENSIONS	(Set Size)	(Carton Size)
Height:	353 mm	390 mm
Width:	350 mm	420 mm
Depth:	377 mm	456 mm

WEIGHT		
Net Weight:	11 Kg	12.5 Kg

TILT / SWIVEL BASE

Tilt Range:	+15° / -5°
Swivel Range:	± 45°

3. Display Tube Characteristics

Size:	14" with 3 to 4 aspect ratio, 90°	29.1 mm neck.
Dot Pitch:	0.28 mm	
Gun:	In-line	
Surface / Transmission:	Non-glare, Dark tinted	
Phosphor / Persistence:	P22 / Medium Short	

4. Electric Performance

1) Power Supply

Input Voltage:	AC 100-240V
Input Frequency:	60+/- 3 Hz / 50+/- 3 Hz
Input Current:	1.5 A max (100-240VAC)
Consumption:	75 W max

2) Input Signals

Video Signal:	Red / Green / Blue. All are positive analog.
Input levels:	0-0.7 Vp-p (max.) / 75 ohm

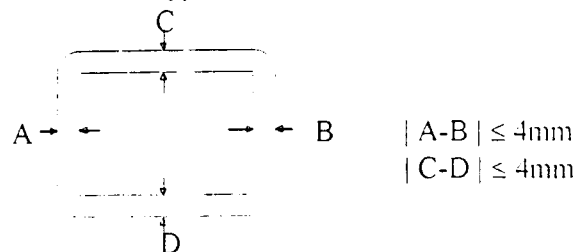
3) Resolution

	1024 × 768 / 60 HZ Non - Interlaced
Fh	30K ~ 54KHZ
Fv	50HZ - 120HZ

3) Display Color: Unlimited colors.

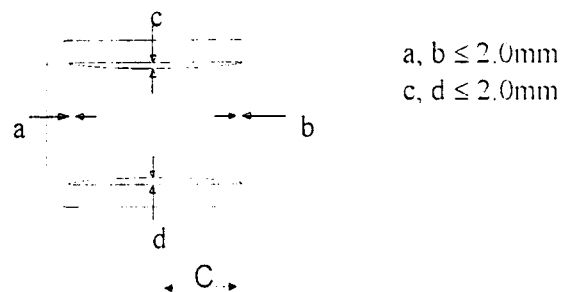
4) Display Size:
Horizontal: 250 mm typical
Vertical: 185 mm typical

5) Image Position:

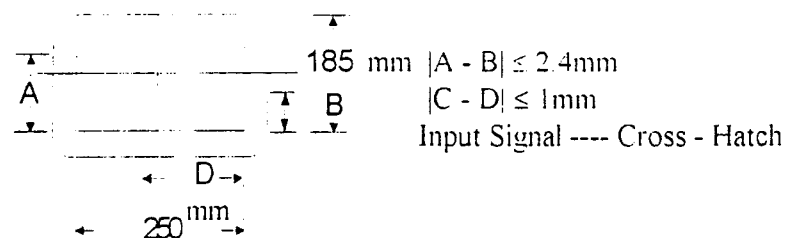


6) Distortion:

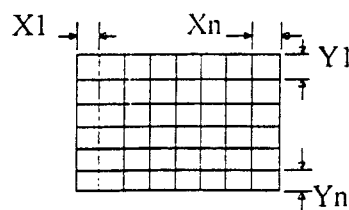
A) Pincushion



B) Tilt



C) Linearity



Horizontal Linearity =

$$\frac{|X - \bar{X}|}{\bar{X}} \times 100\% < 7\%$$

Vertical Linearity =

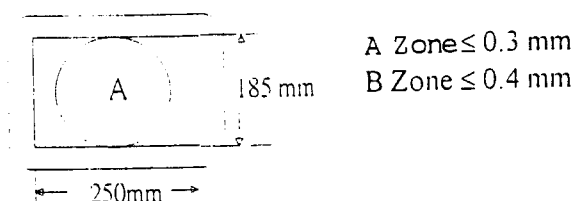
$$\frac{|Y - \bar{Y}|}{\bar{Y}} \times 100\% < 7\%$$

$$\bar{X} = \frac{X1 + X2 + X3 + \dots + X8}{8}$$

$$\bar{Y} = \frac{Y1 + Y2 + Y3 + \dots + Y6}{6}$$

Note: Input Signal is a cross-hatch pattern.

7) Misconvergence:



8) White Balance:

$$x = 0.281 \pm 0.03$$

$$y = 0.311 \pm 0.03$$

9) Environmental Conditions:

Operation: 0°C to 40°C ambient
 Humidity: 20 % to 80% (non-condensing)
 Altitude: to 10000 feet above sea level
 Storage: -20°C to 60°C

10) User Controls:

Front: Power Switch, Brightness, Contrast, V. Center, V. Size, H. Phase H. Width, Pincushion, Function select (Recall)
 Rear: Trapezoid.

11) Signal Connector: 15-pin mini D-Sub Male Connector

12) Safety Approval:

TUV/GS:	EN60950, ZH 1/618	FCC : Part 15 Class B
UL:	UL1950	ISO : 9241-3
DHHS:	Rules 21 CFR Subchapter J.	CE : EN50082-1+EN55022
CUL:	CSA-22.2 No. 950	MPRII : 1990:8, 1990:10

13) Low Radiation : (Option)

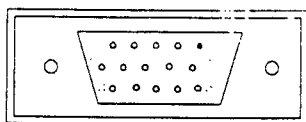
Point	Specification	Low Radiation with Anti-Static
X-Ray	$< 100 \text{ nGy/h}$	V
Magnetic Field ELF	$\leq 250 \text{ nt}$	V
Magnetic Field VLF	$\leq 25 \text{ nt}$	V
Electrostatic Potential	$\leq 500\text{V}$	V

GENERAL CONNECTION & APPLICATIONS

Procedures for installing and using this Model of Colour Display:

1. Place the display at the desired operating location. Be certain that the AC outlet is 100-240 VAC.
2. The three-wire power cord is provided as a safety precaution as it connects the chassis and cabinet to the electric conduction ground. If the AC outlet in your location does not have provision for the grounded type plug, the installer should attach the proper adapter to ensure a safe ground potential.
3. Connect the 15-pin colour display shielded signal cable to the video adapter output on your computer and lock both screws on the connector to ensure their grounding. The connector appears as follows:

Front view
(Pinside)



Pin Layout & Pin Assignment Chart

PIN	SIGNAL
1	RED SIGNAL
2	GREEN SIGNAL
3	BLUE SIGNAL
4	JUMPER TO PIN 10
5	N.C.
6	RED RETURN
7	GREEN RETURN
8	BLUE RETURN
9	DC +5V
10	DIGITAL GROUND
11	MONITOR SENSE I (JUMPER TO PIN 10)
12	SDA
13	HOR. SYNC
14	VERT. SYNC
15	SCL

4. Turn on the computer power switch.
5. Apply power to the display by turning the colour display switch to the "ON" position and allow about thirty seconds for the display tube to warm up. The indicator lights up when the display is on. After about two seconds, data should appear on the screen. Adjust the brightness and contrast for the best readability.

USER CONTROL

1. Led Indicator :

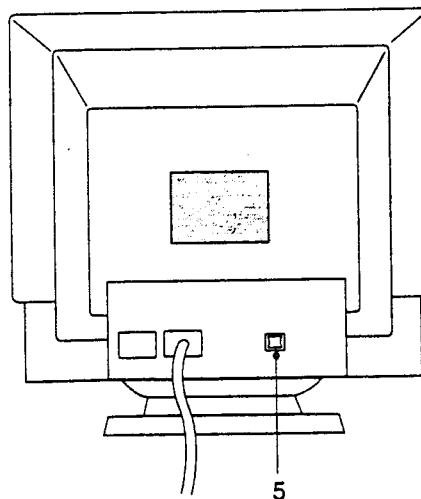
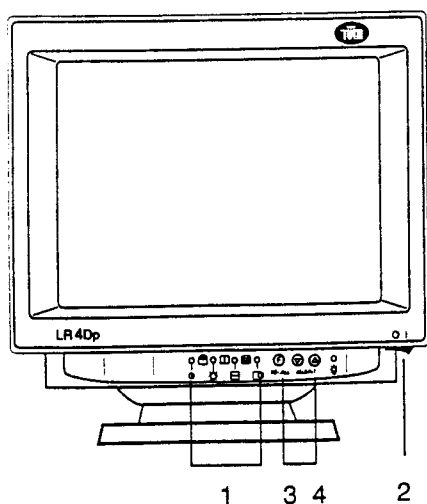
- Contrast : The contrast can be adjusted when the indicator is lit up.
Brightness : The Brightness can be adjusted when the indicator is lit up.
H. Width : The horizontal size of display can be adjusted when this indicator is lit up.
H. Phase : The horizontal display position can be adjusted when this indicator is lit up.
V. Center : The vertical display position can be adjusted when the indicators are lit up.
V. Size : The vertical size of the display can be adjusted when the indicators are lit up.
Pincushion : The side pin or barrel of the display can be controlled when the indicators are lit up.

2. Power-On Switch : Turns the monitor on / off

3. Press (F) (Function) to select the desired function. Then press $\triangle$ ∇ key to increase / decrease keys to the desired value of selected function (the selected function indicator will keep flashing when it reaches the lowest/highest value).

4. Press Function Key about 3 seconds continuously to recall the factory preset values of all functions for the current mode.

5. The Trapezoid can be adjusted by using "-" screw driver to adjust the hidden VR inside of the rear cover.



ADJUSTMENT PROCEDURES

Check the monitor according to the *VTM Inspection Standards* and, if necessary, follow the procedures below to adjust the monitor.

1. Power Supply

- a. Input Voltage: AC100V ~ AC240V.
- b. Input Frequency: 60 +/-3Hz / 50 +/-3Hz.

2. Note

- a. Turn the monitor so the screen of the CDT faces eastward.
- b. Before adjustments, warm up the monitor for 30 minutes.
- c. Mode setting refer to table 1

3. Control Confirmation

- a. The 640×480 31.5K mode signal will be used to check all display modes of the monitor.
- b. To adjust the monitor, set the brightness control to its center position and the contrast control to its maximum position.

4. Adjustment Equipment (for reference only)

- a. Degaussing Coil
- b. Oscilloscope and Probe
- c. Digital Voltmeter (Model: Fluke 8050A or equivalent)
- d. Colour Analyzer (Model: Minolta TV-2130 or CA-100)
- e. Ruler (30 cm)
- f. High - Voltage Probe (Model: Fluke 80K-40)
- g. PC: IBM PC 486/586/686 or equivalent
- h. Chroma (Model: 1000, 2000 or 2130, 2135)
- i. Power meter (model: 2533 or equivalent)
- j. Screw driver "-" & "+"

5. Parameters of Signal Timing Generation

Timing	1	2	3	4	5	6	7
Standard	Industry	Industry	Industry	VESAII	VESAII	VESA	VESAII
Data Pixel	640	640	640	640	640	640	800
Data Line	350	400	480	480	480	480	600
H-Freq kHz	31.469	31.469	31.469	37.86	37.500	43.269	46.875
V-Freq HZ	70.087	70.087	59.942	72.809	75.000	85.008	75.000
Pix Rate	25.175	25.175	25.175	31.5	31.500	36.000	49.500
Hor .A(us)	0.636	0.636	0.636	0.762	0.508	1.556	0.323
Hor .B(us)	3.813	3.813	3.813	1.27	2.032	1.556	1.616
Hor .C(us)	1.907	1.907	1.907	4.063	3.810	2.222	3.232
Hor .D(us)	25.422	25.422	25.422	20.32	20.317	17.778	16.162
Hor .E(us)	31.778	31.778	31.778	26.0	26.667	23.111	21.333
Vert.A(ms)	0.381	0.381	0.381	0.238	0.027	0.023	0.021
Vert.B(ms)	0.064	0.064	0.064	0.079	0.080	0.069	0.064
Vert.C(ms)	1.875	1.112	1.048	0.74	0.427	0.578	0.448
Vert.D(ms)	11.122	12.711	15.253	12.68	12.800	11.093	12.800
Vert.E(ms)	14.268	14.269	16.683	13.74	13.333	11.764	13.333
Sync.Pol	+/-	--/+	-/-	-/-	+/-, +/-	+/-, +/-	+, +/-

Timing	8	9	10
Standard	VESA	VESA	VESA
Data Pixel	1024	800	800
Data Line	768	600	600
H-Freq kHz	48.363	48.077	53.674
V-Freq HZ	60.0	72.187	85.061
Pix Rate	65	50	56.25
Hor .A(us)	0.369	1.120	0.569
Hor .B(us)	2.092	2.40	1.138
Hor .C(us)	2.462	1.28	2.702
Hor .D(us)	15.75	16.0	14.222
Hor .E(us)	20.68	20.8	18.631
Vert.A(ms)	0.062	0.77	0.019
Vert.B(ms)	0.124	0.125	0.056
Vert.C(ms)	0.60	0.478	0.503
Vert.D(ms)	15.88	12.48	11.179
Vert.E(ms)	16.67	13.859	11.758
Sync.Pol	+/-, +/-	+/-, +/-	+/-, +/-

Table 1 for mode setting

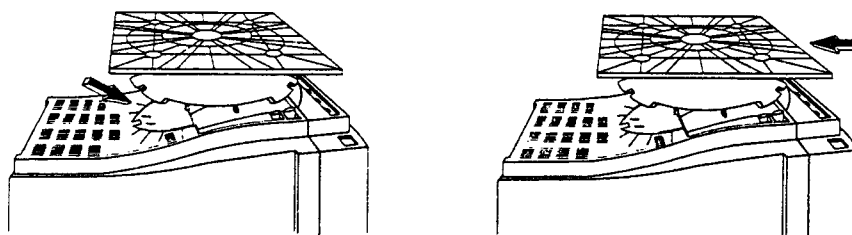
Mode	Card Item	Freq. H. KHz	Freq. V. Hz	Resolutions
1	VGA Mode 2	31.5	70.08	640 x 400
2	VESA	37.5	75	640 x 480
3	VGA Mode 3	31.5	60	640 x 480
4	VESA	37.88	72.81	640 x 480
5	VESA	43.269	85.008	640 x 480
6	VESA	46.875	75.0	800 x 600
7	SUPER VGA	48.37	60.5	1024 x 768

Note : Video Output Analog 0.7 V P-P Position
(Transition Time 10-90%=8ns MAX)

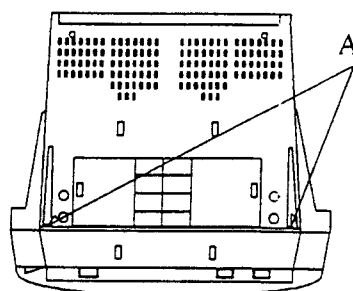
6. Disassembly for Rear Cabinet

a. Swivel Base Removal

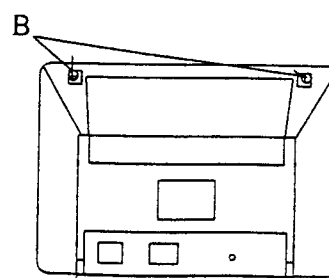
Gently press at the clip with one hand, while pulling the T/S base towards the rear of the cabinet with the other hand. The T/S base should now come off of the monitor.



- b. Remove 2 screws (A) from the bottom of rear cabinet and 2 screws from the rear cabinet (B), then remove the rear cabinet. (If main board needs to be change, please refer to the page 54 for detail).

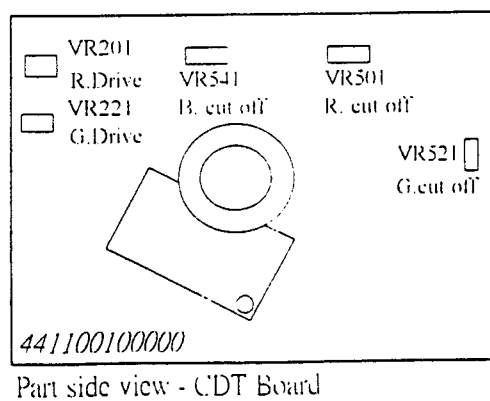
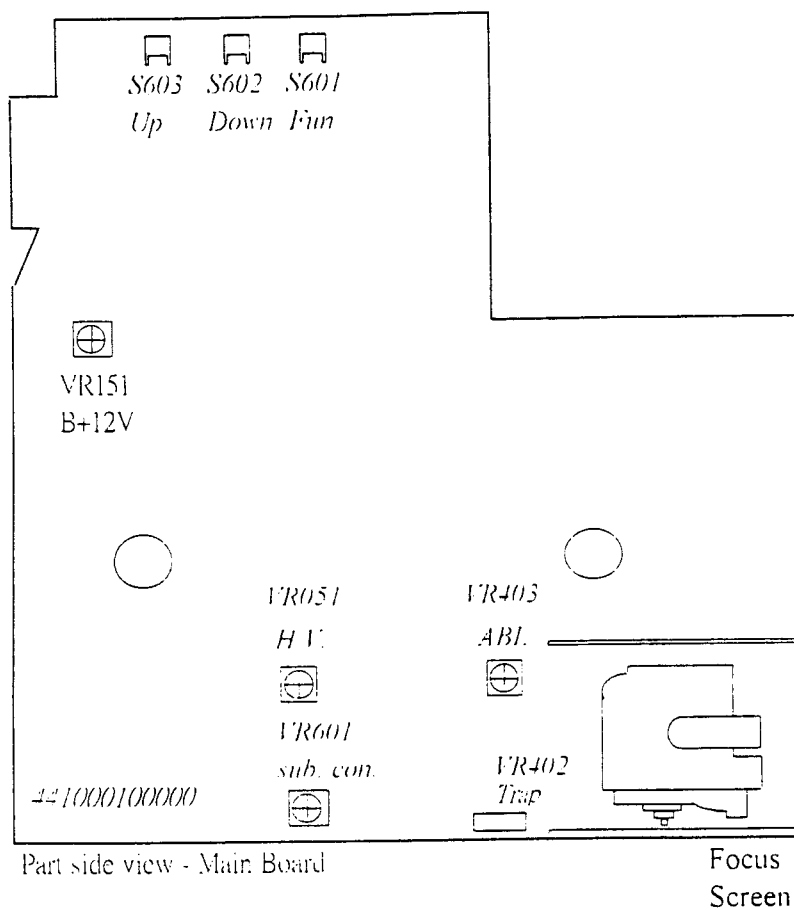


Bottom side view



Back side view

7. Service Adjustment Control Locations:

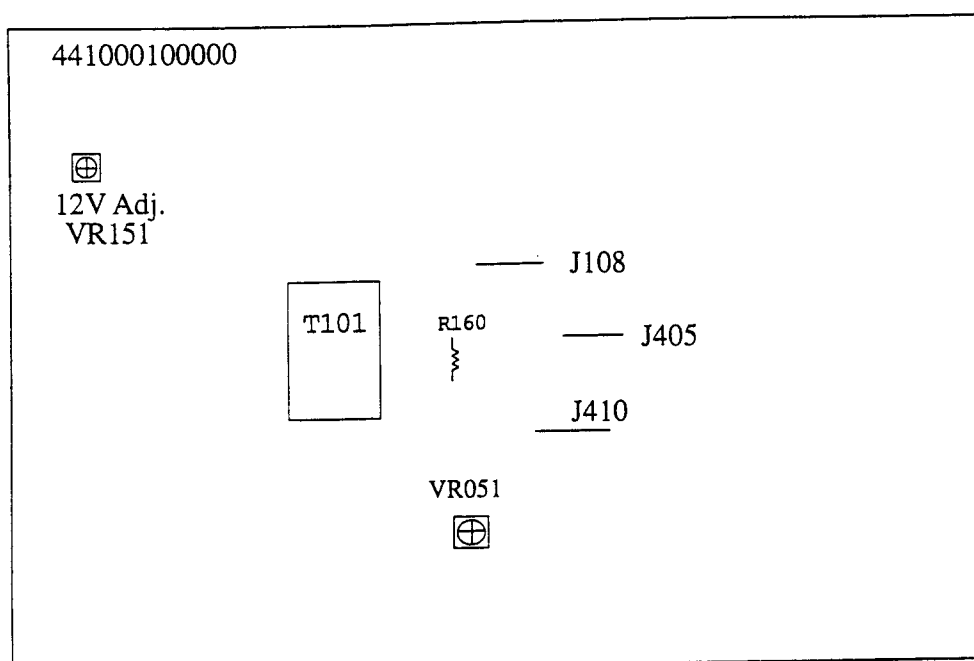


8. Adjustment

a. B+ Voltage Adjustment :

- Apply the mode 3 signal with a crosshatch pattern.
- Apply 110V/220V AC to the unit.
- Set the Brightness and the Contrast to the min., the H-Width to the max.
- Put the DVM probe between J108 cathode and GND.
- Adjust the VR151 until 12 VDC +/- 0.1V.
- Confirm the voltage across the J405 to be 23 VDC +/- 0.15V.
- Confirm the voltage across the R160 to be 6.3 VDC +/- 0.2V.
- Adjust VR051 until the voltage across J410 to be 89V +/- 1V.
- Set the brightness and the contrast to the max., the H-Size to nominal.(250mm).

Parts side view

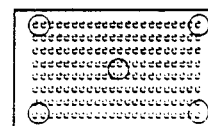


c. X-Ray Protection Test :

- Short TP416 and TP417 (Install 3k ohm tool), Check if the protection circuit works.
- Remove the tool and Restart the unit.

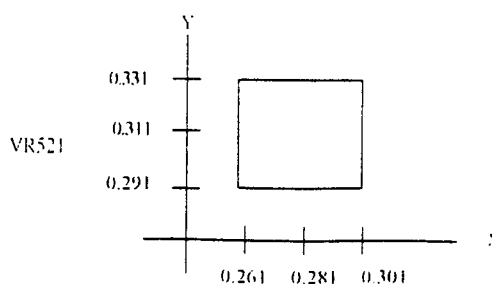
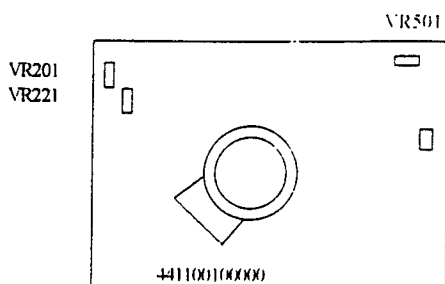
d. Focus Adjustment :

- Apply the mode 7 signal with the text pattern.
- Set the brightness and contrast to the raster just disappears.
- Adjust the focus VR (on the FBT) until the letter "text" appear (at five point) to its clearest.



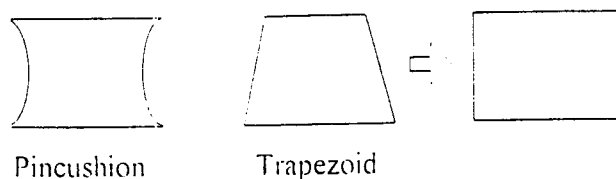
e. White Balance Alignment : (Warm Up 30 Minutes)

- Degauss the screen using the degaussing coil.
- Apply the mode 3 signal with the video cut off pattern.
- Set the contrast to the min., and the brightness to the max. (at exterior)
- Put the color analyzer probe on the screen center, adjust the screen VR (G2) (on the FBT) until the "Y" is 0.7 Ft-L.
- Adjust the VR501 and the VR521 until "x" = 0.281 and "y" = 0.311 +/- 0.005 (the "Y" must be in 0.4 - 0.8 Ft-L range)
- Adjust the screen VR (on the FBT) again if it is out of range.
- Apply the white-square-box pattern (50mm x 50mm).
- Set the contrast and the brightness to the max.
- Adjust the VR601 to 55~60 Ft-L.
- Apply the mode 6 signal (full white screen).
- Put the color analyzer probe on the screen center, adjust the contrast until "Y" = 10 Ft-L.
- Adjust the VR201 & the VR221 until "x" = 0.281 and "y" = 0.311 +/- 0.005.
- Confirm the reading by setting the contrast from 5-20 Ft-L, make sure that the reading is within ("x" = 0.281 and "y" = 0.311 +/- 0.010) range.



f. Size, Trapezoid & Pincushion Adjustment :

- Apply the mode 6 signal with a crosshatch pattern.
Adjust the digital control key (at exterior).
- Adjust the V-Size to be 185 mm and adjust V-Phase to be centered.
- Adjust the H-Width to be 250 mm and adjust the H-Phase to be centered
- Adjust the Pincushion for the best result.
- Adjust the Trapezoid for the best result (at the rear cover).



g. Size, Phase, Pincushion, Interlace, H-Linearity, V-Linearity, Rotation and QC Check :

- Apply the mode 6 signal with a crosshatch pattern.
- Set the H-Width to 250 mm, the V-Phase to 185 mm. Check mode 1-7 if the size is off by +/- 10 mm, the pincushion +0.5 mm and -2 mm range, Rotation +/- 1 mm.

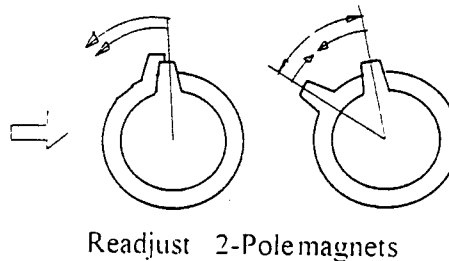
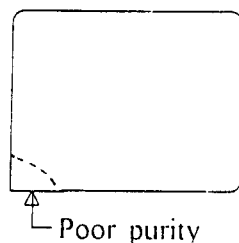
h. Power Saving Test :

- STANDBY MODE: Open the H-Sync, check the power is under 30 W.
- SUSPEND MODE: Open the V-Sync, check the power is under 30 W.
- OFF MODE: Open the H-Sync and V-Sync, check the power is under 5W.

PURITY & STATIC CONVERGENCE ADJUSTMENT

a. Purity Adjustment :

- Warm up the monitor for 30 minutes before performing this adjustment.
- Loosen the PCM (Purity, Convergence, Magnetic) assembly.
- Clean the glue off the magnetic assembly (After adjustment, fix the assembly with glue again.)
- Degauss the CDT with a degaussing coil.
- Turn the contrast and brightness controls to their maximum position.
- Apply a full-green pattern signal.
- Align the long and short purity magnets until a zero magnetic field is produced.
- Rotating the 2-pole magnets to the full-green colour on the screen.
- Recheck with full-red and full-blue pattern signals. Re-adjust the 2-pole magnets to assure the best purity.



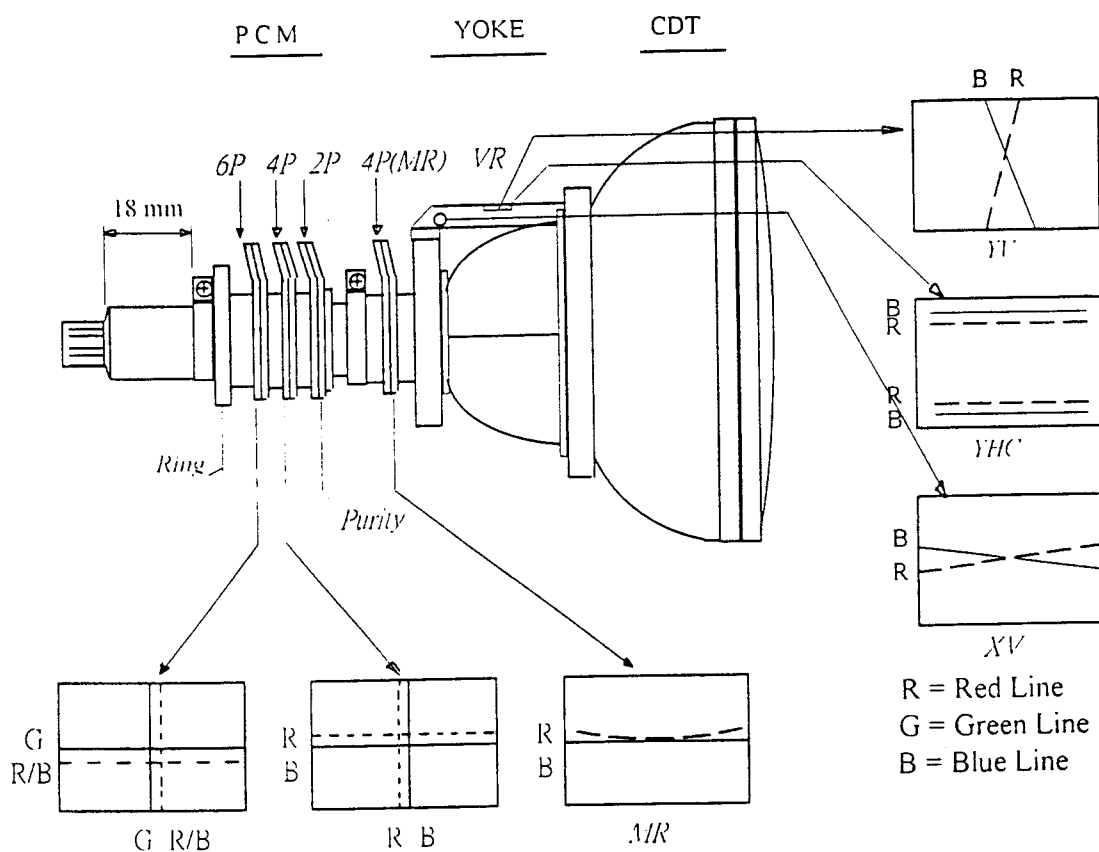
b. Static Convergence Adjustment:

- Apply a cross hatch pattern signal.
- Turn the brightness and contrast controls to the center position.
- The 4-pole magnets are used to adjust the static convergence. Rotate the magnets until the red and blue lines become one purple line. Rotating the 6-pole magnets will cause the purple and green lines to converge. (Dynamic convergence is adjusted by moving the yoke as described in section c.)

Note:

- Warm up the monitor 30 minutes and the CDT must face east.
- Degauss the display fully by using an external degaussing coil.
- Before adjusting the convergence, the vertical size, the horizontal width, and the focus adjustment must be complete

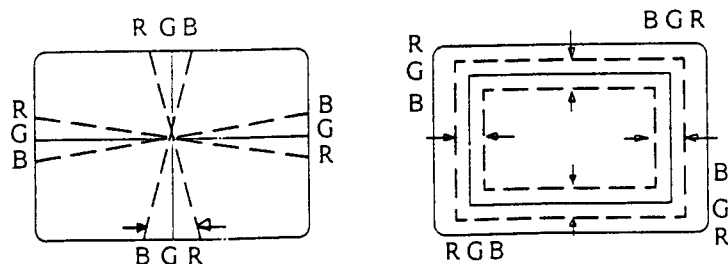
1. Apply red and blue cross-hatch pattern signals.
2. The red and blue lines are converged by turning the two tabs of the 4-pole magnets.
3. Apply a cross-hatch pattern of green lines. Adjust the convergence of the purple and green colours by turning the two tabs of the 6-pole magnets.
4. Repeat these steps until the best convergence of red, green and blue has been obtained.
5. Due to the interaction among the magnets, there may be a need to repeat the adjustment.



c. Dynamic Convergence Adjustment:

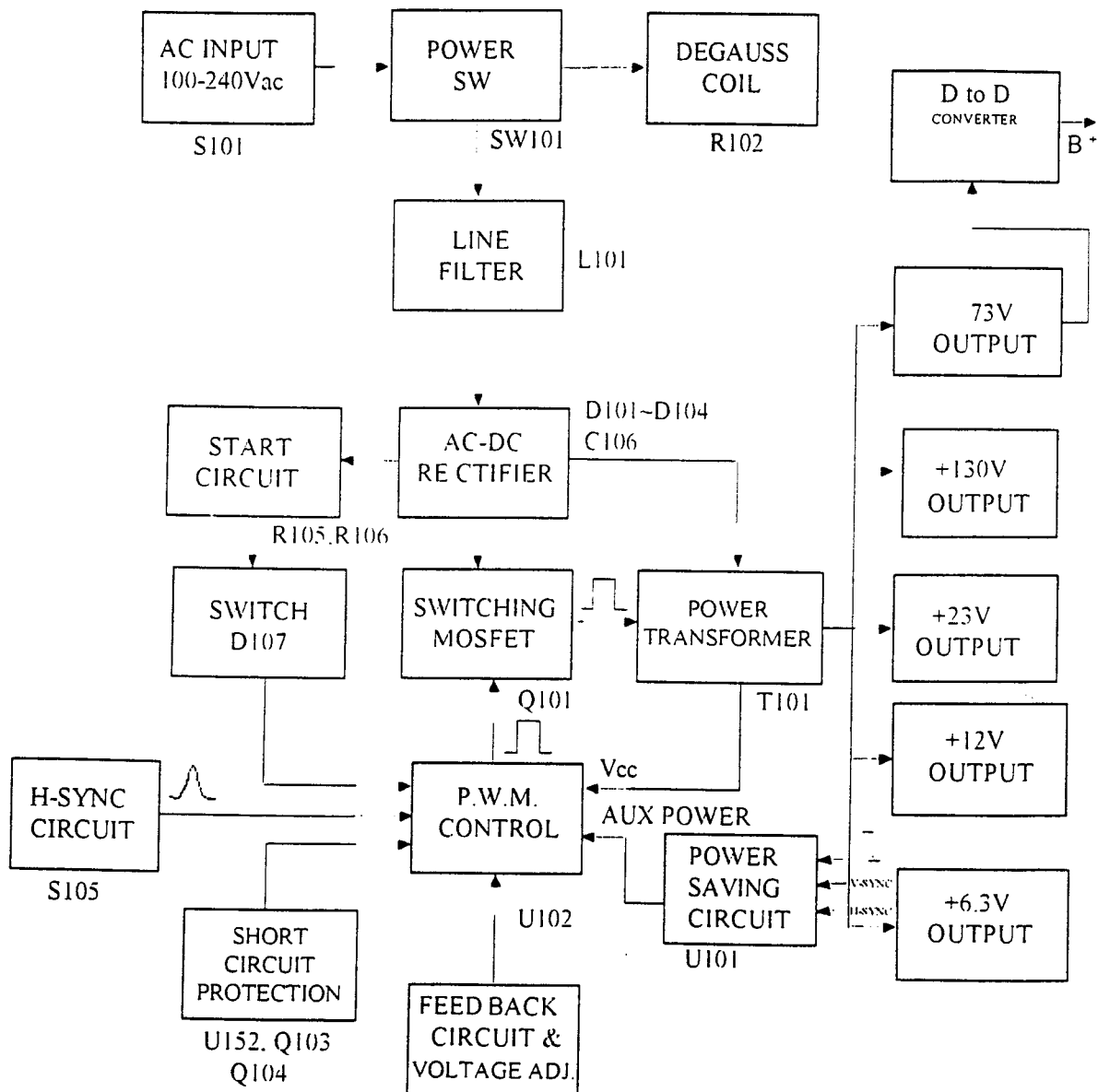
Note: Rubber inserts are necessary to adjust dynamic convergence.

- Put two rubber inserts between the yoke and the funnel of the CDT. Fix them temporarily.
- Move the yoke up or down to get the best dynamic convergence, and then fix the yoke by pushing the rubber inserts between the yoke and the funnel.

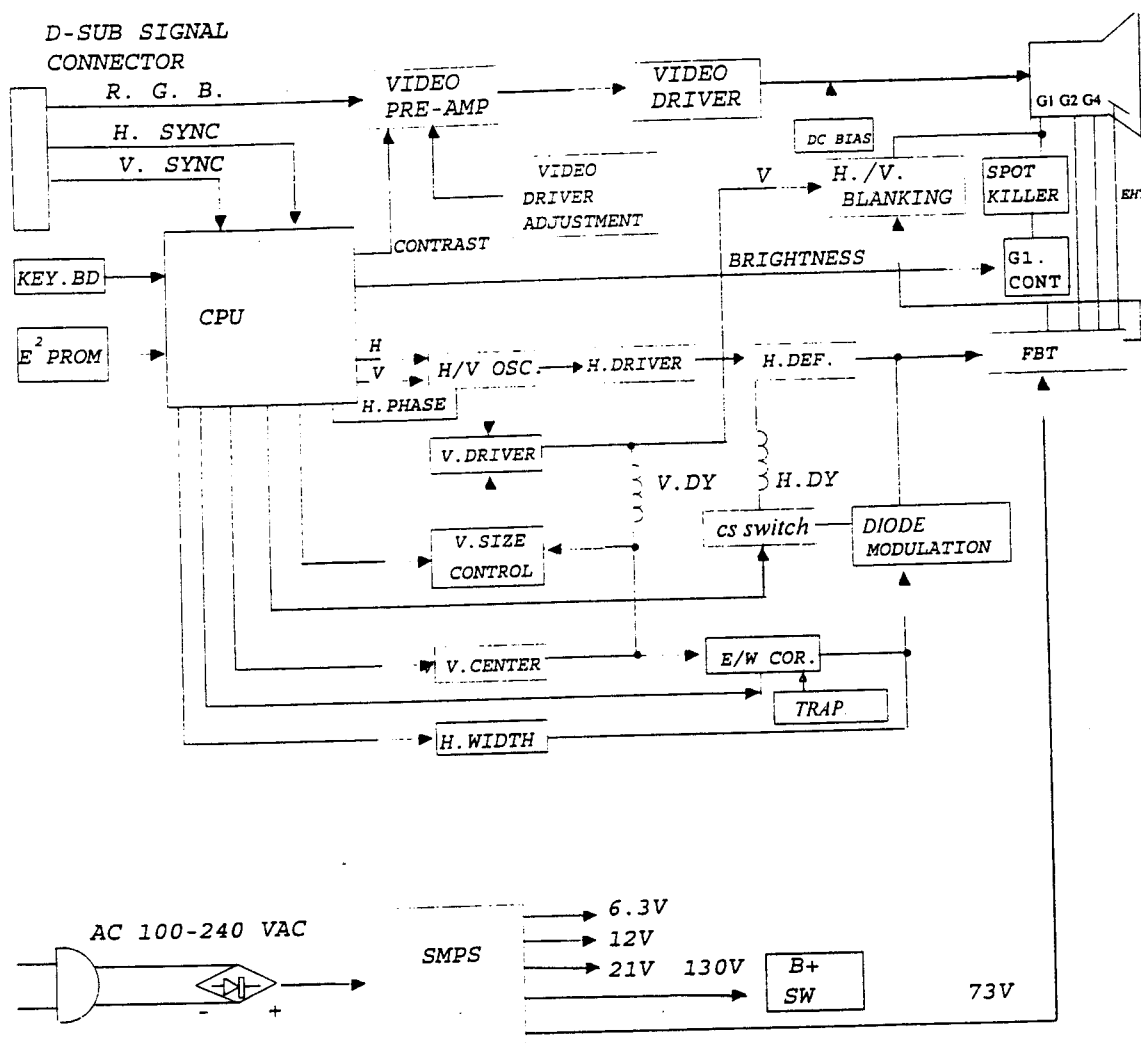


BLOCK DIAGRAM

I. POWER SUPPLY BLOCK DIAGRAM



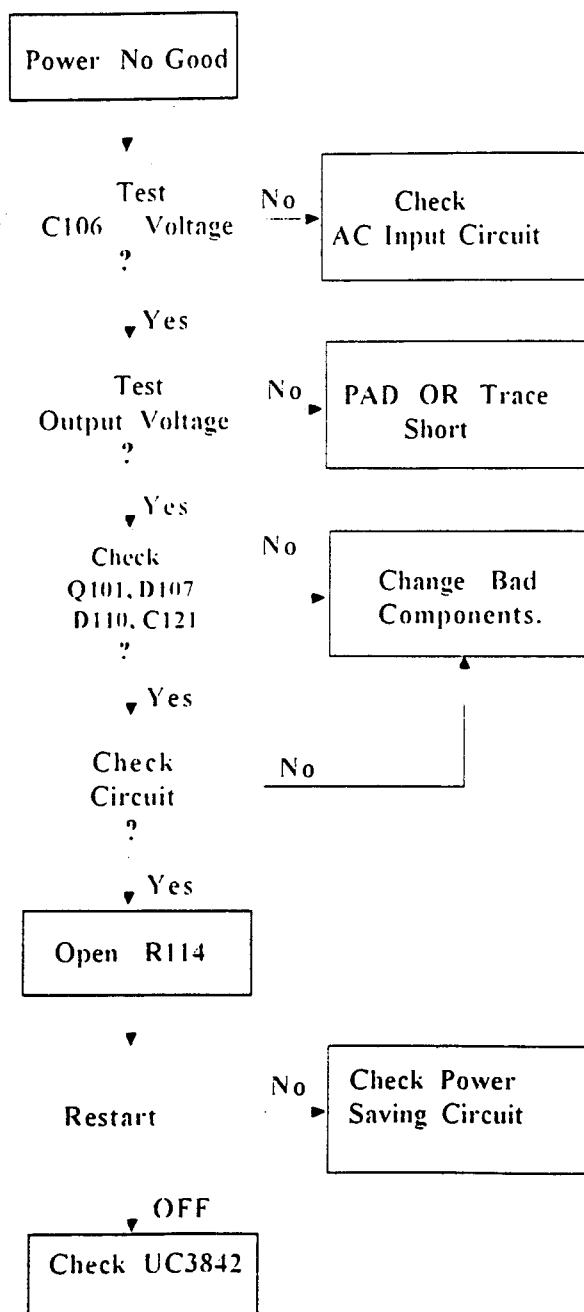
2. MAIN CIRCUIT BLOCK DIAGRAM



TROUBLE SHOOTING CHART

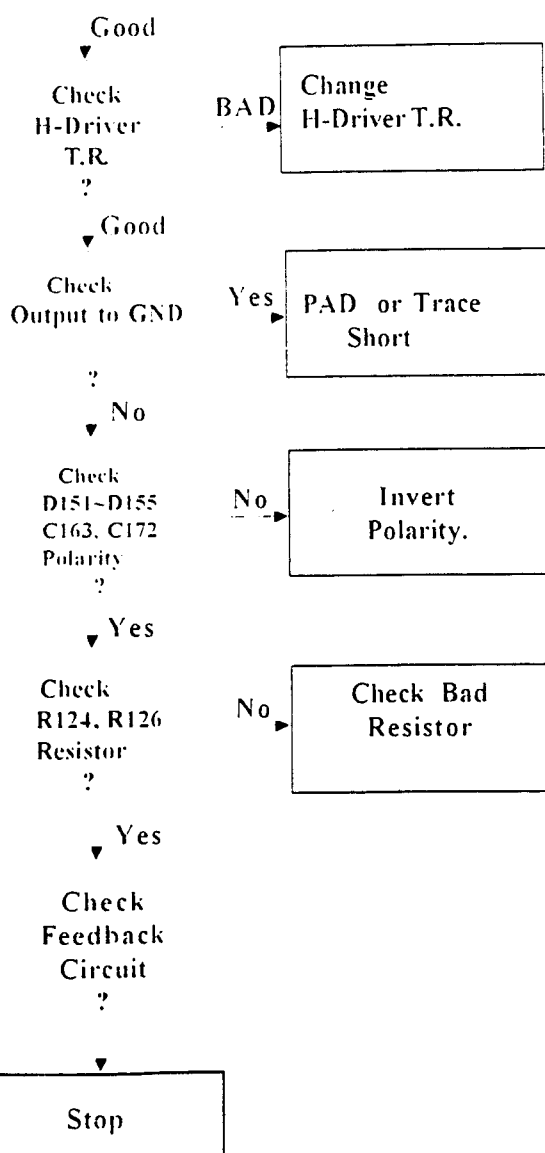
A. POWER SUPPLY CIRCUITS

a. POWER NO GOOD

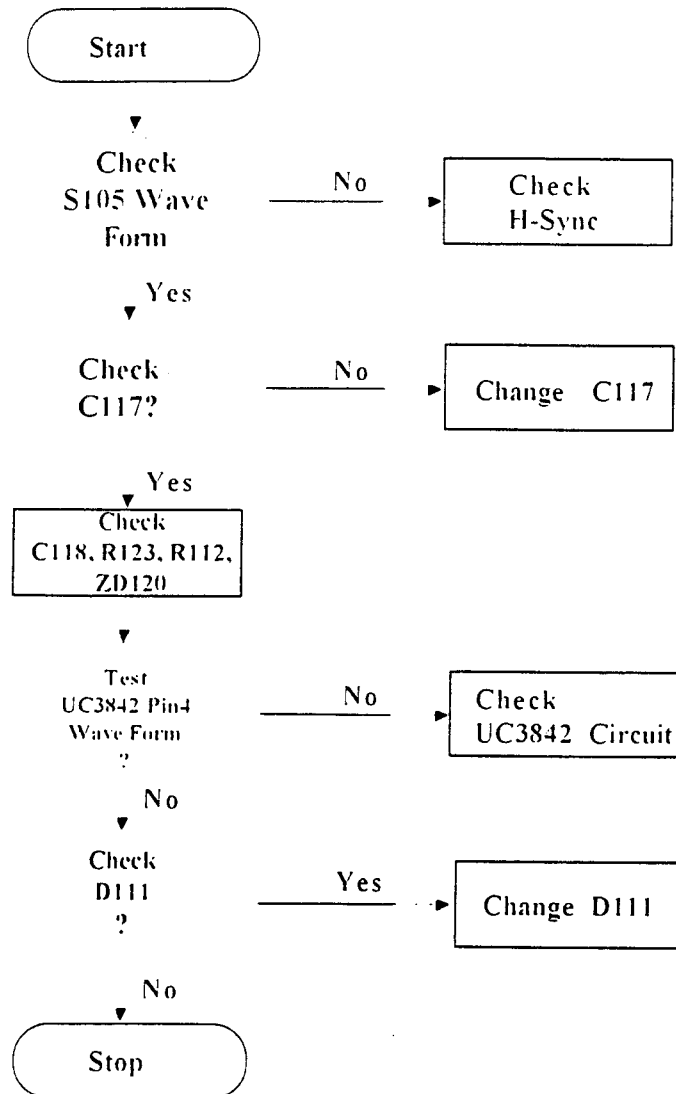


b. LED FLASHING

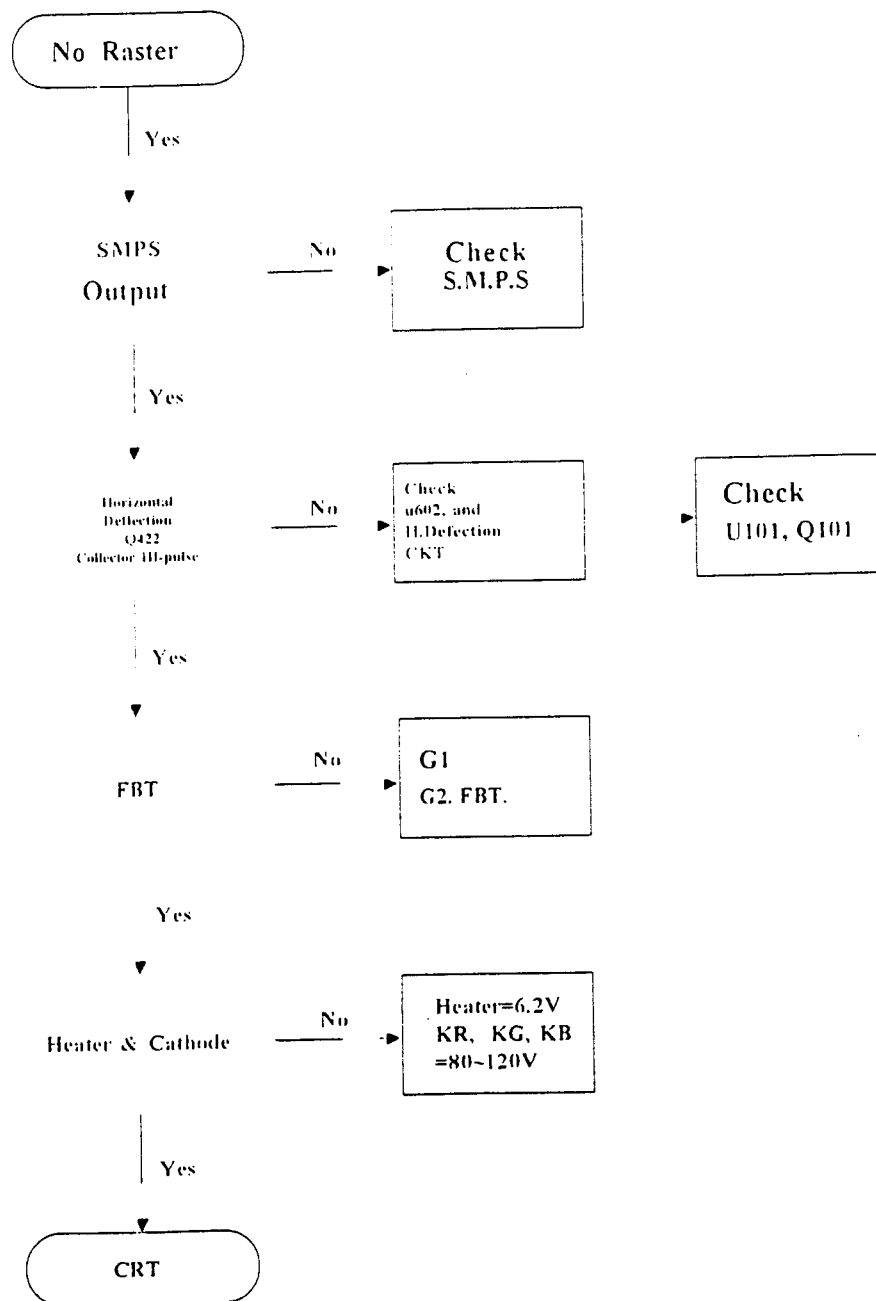
LED Flashing



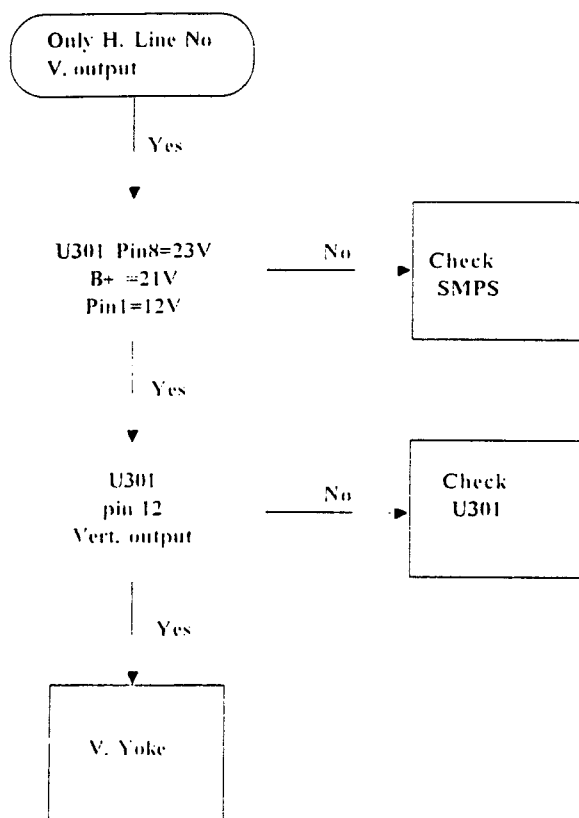
c. H-SYNC Interference



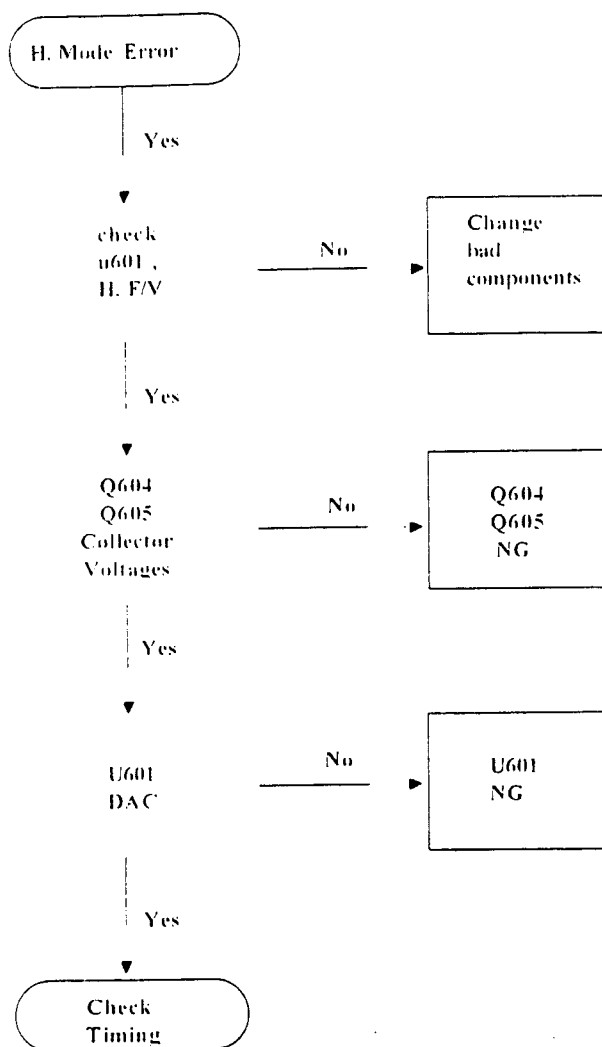
B. VIDEOCIRCUIT
a. NORASTER



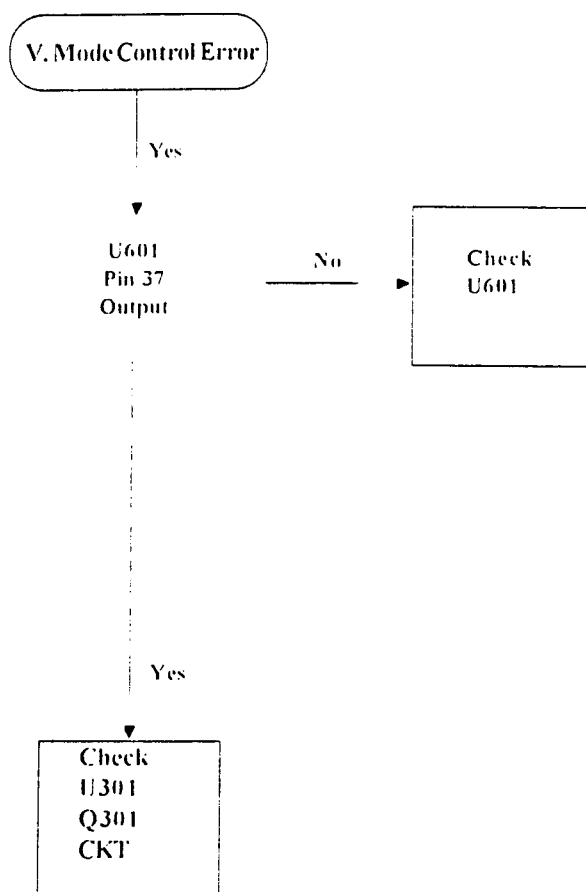
b. ONLY H. LINE NO V. OUTPUT



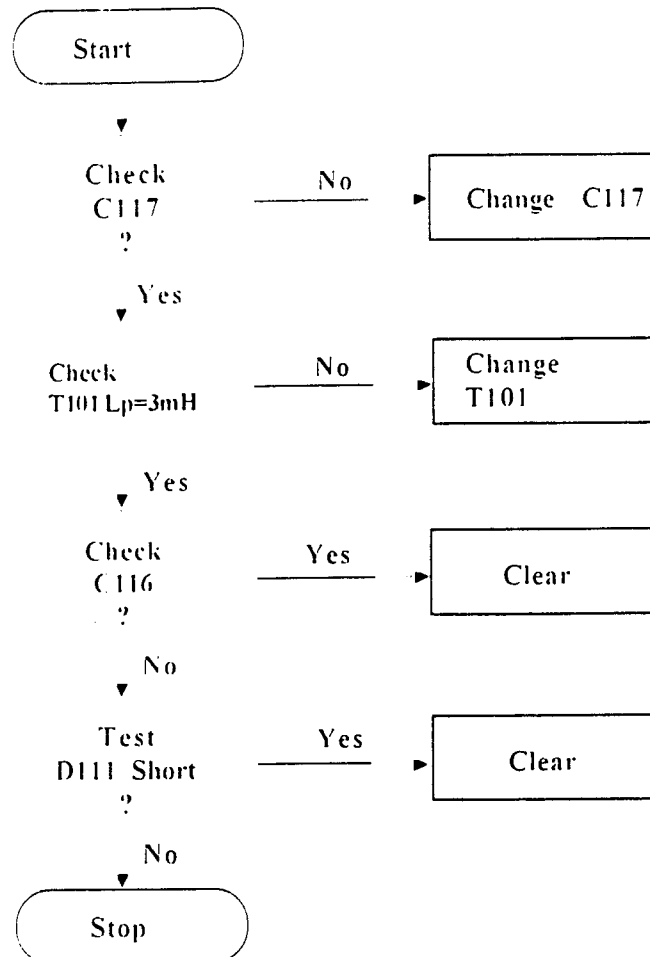
c. H. MODE ERROR



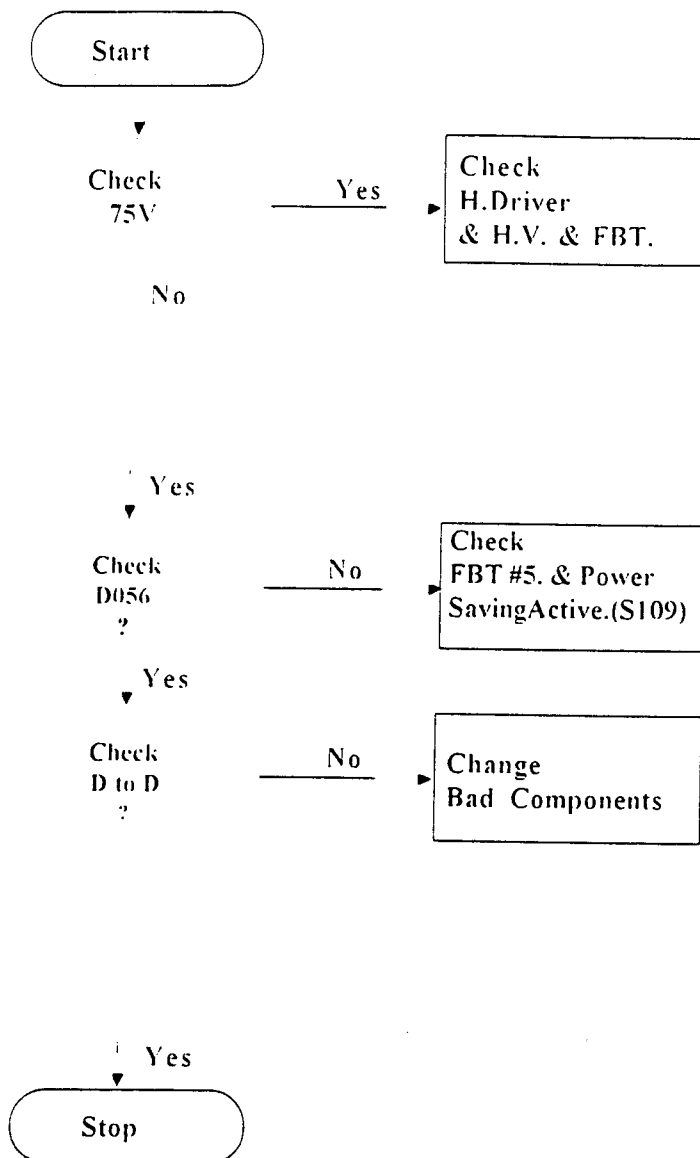
d. V.MODE CONTROL ERROR



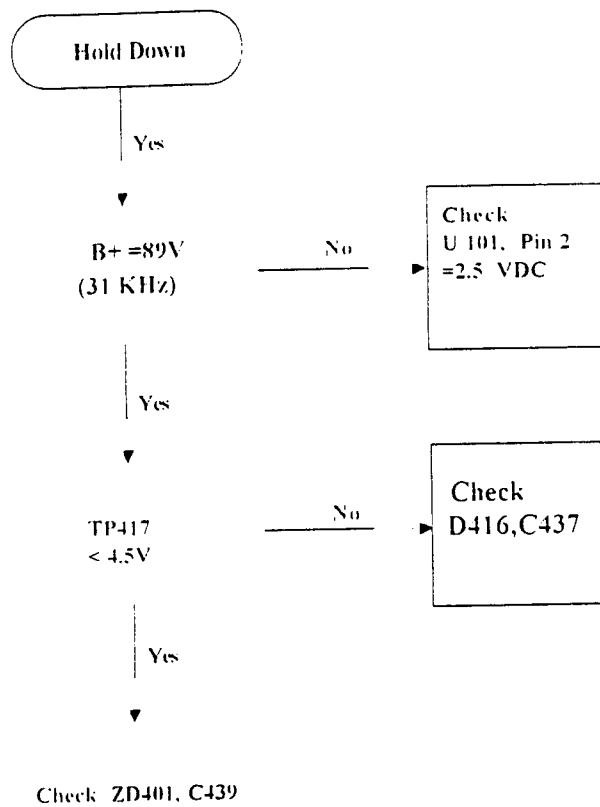
d. NOISE



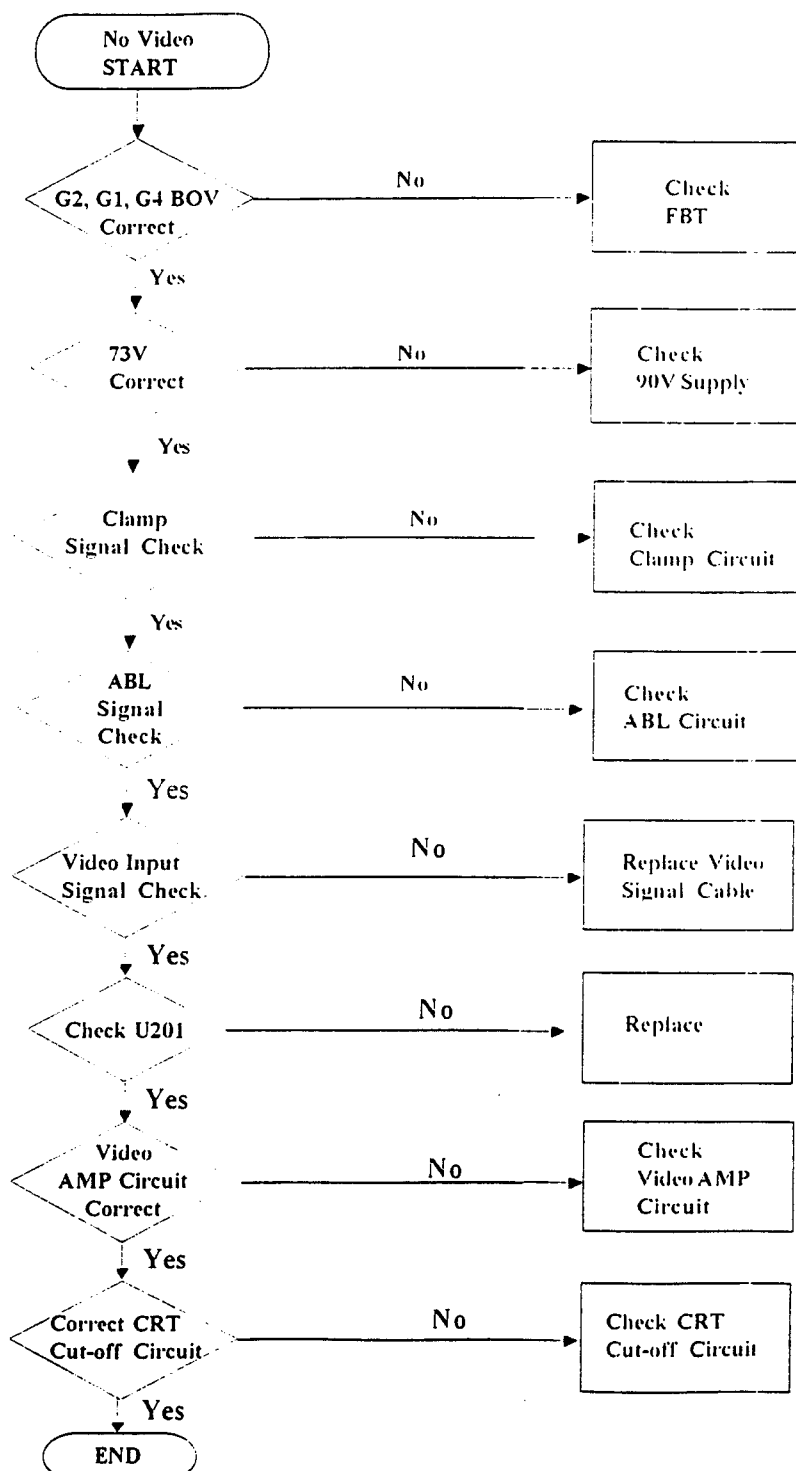
e. NOHIGHVOLATGE



e. HOLD DOWN



f. NO VIDEO START

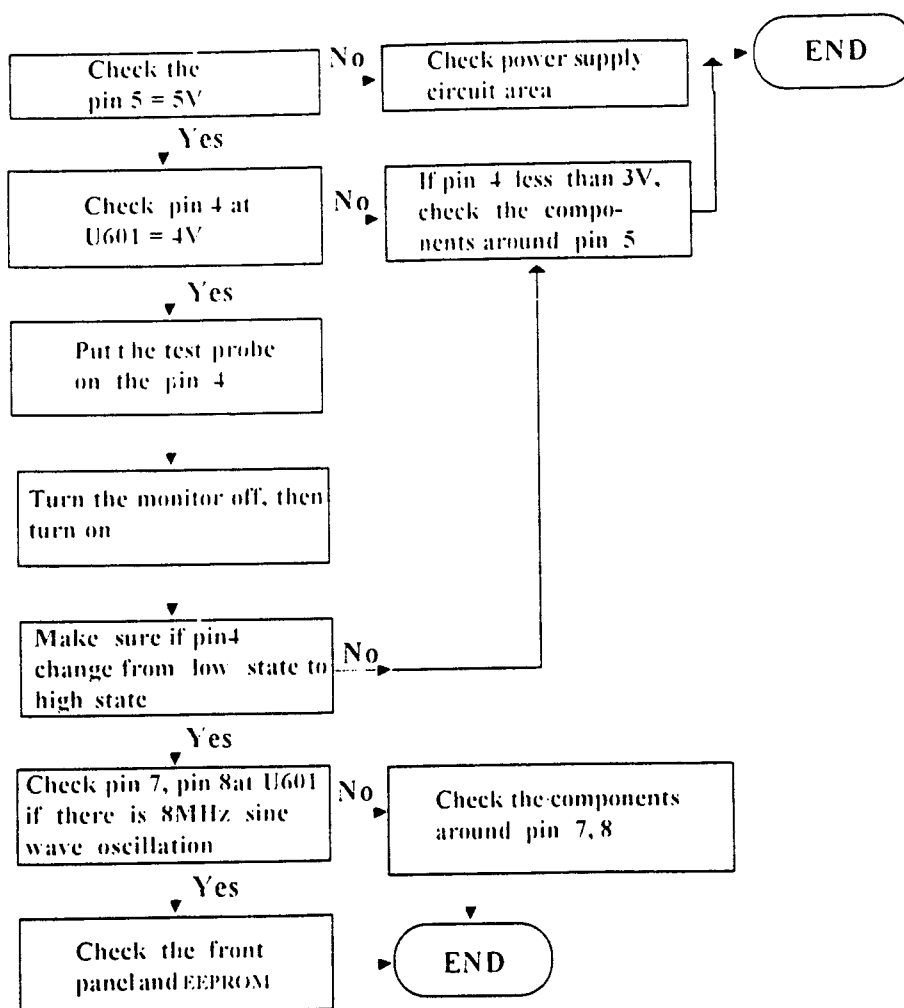


C. CPU Service Procedure

1. The CPU is mal function.
2. The front panel LED or control keys are not working properly.
3. The data message could not be stored by EEPROM
4. The CS signal from CPU is not working properly.
5. During mode change, there is an annoying picture appears on screen.
6. Some times, a data loss occurs on mode 31KHZ & 70Hz.

Solutions:

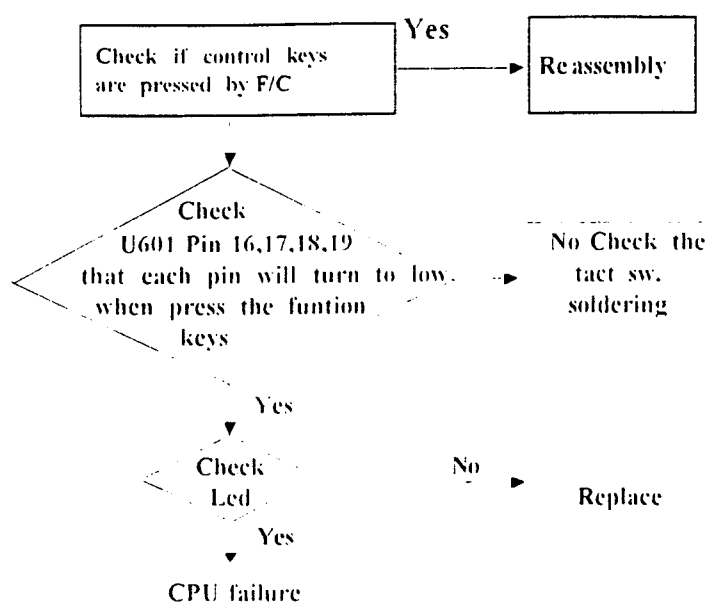
1. The CPU is mal function



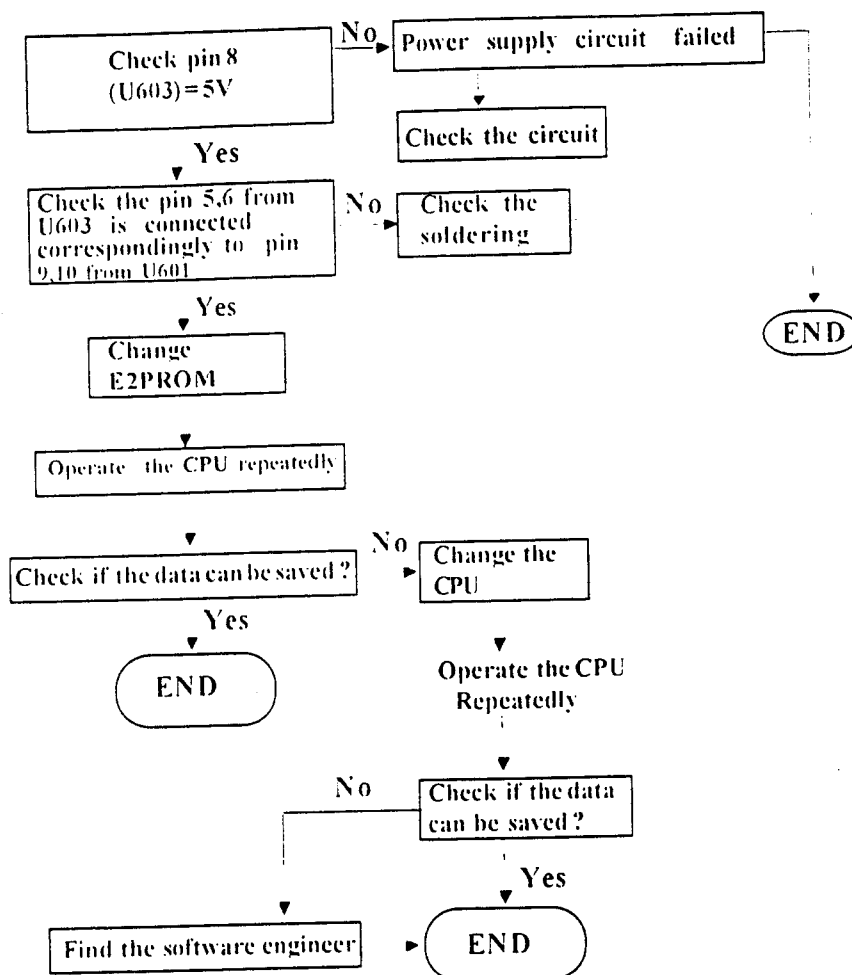
Note:

The CPU mal function is usually caused by the pin 4 not turning to low at power on (this step will initialize the CPU address to ZERO), and then pin 4 return to high state (at least 3V), for the CPU to operate normally.

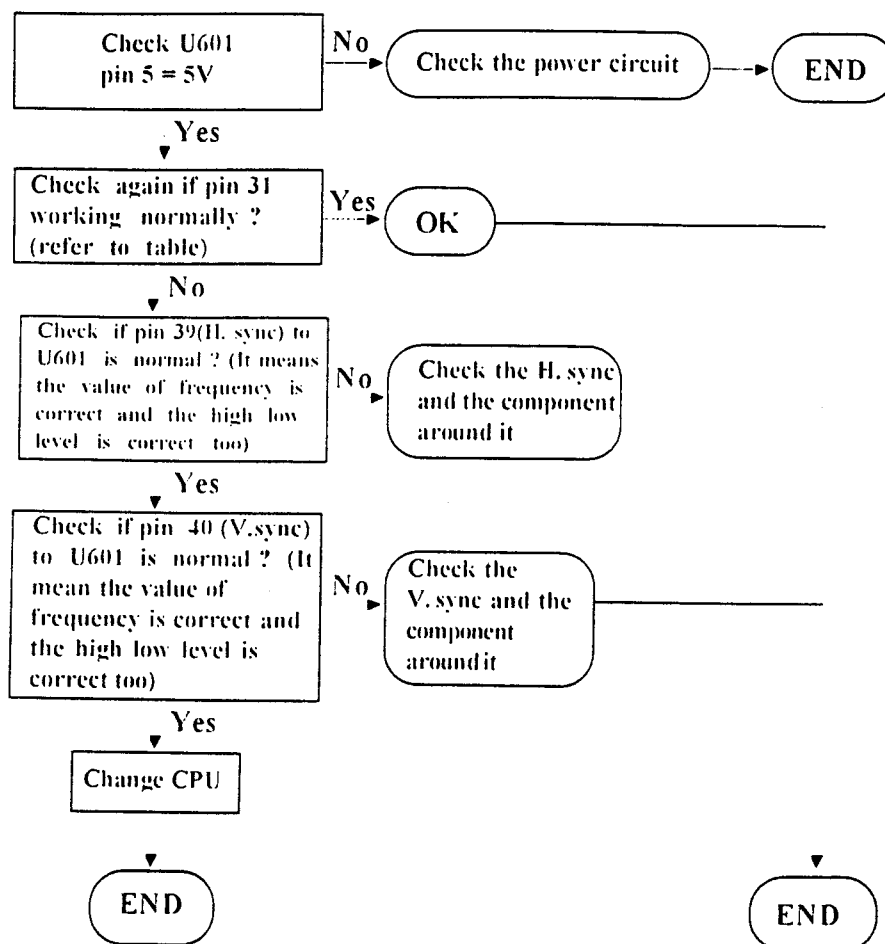
2. The front panel LED or control keys are not working properly



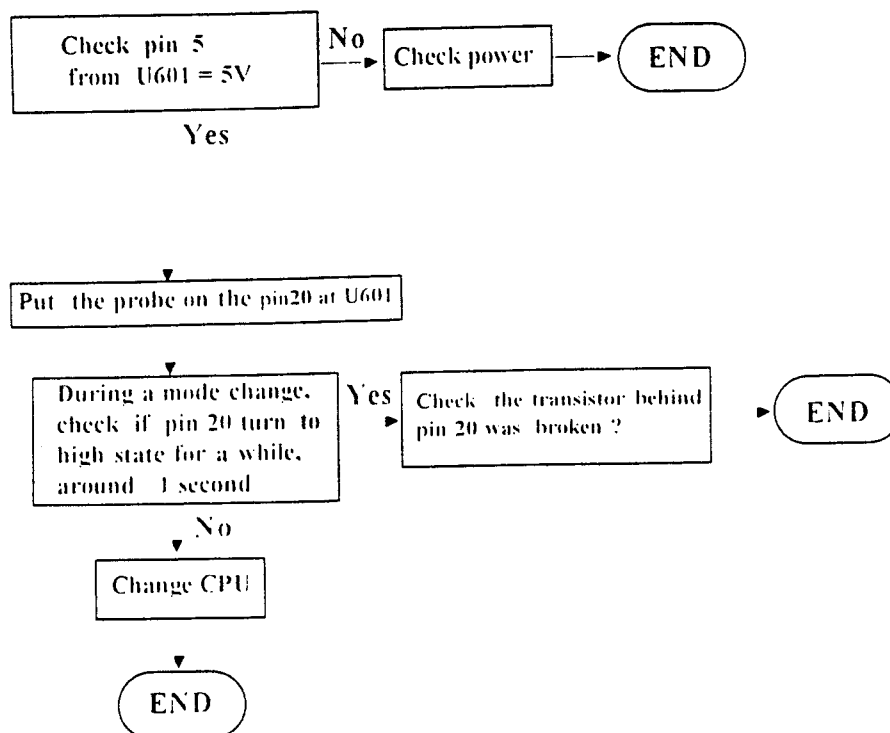
3. The data message could not be stored by E2 PROM



4. The CS signal from monitor is not working properly

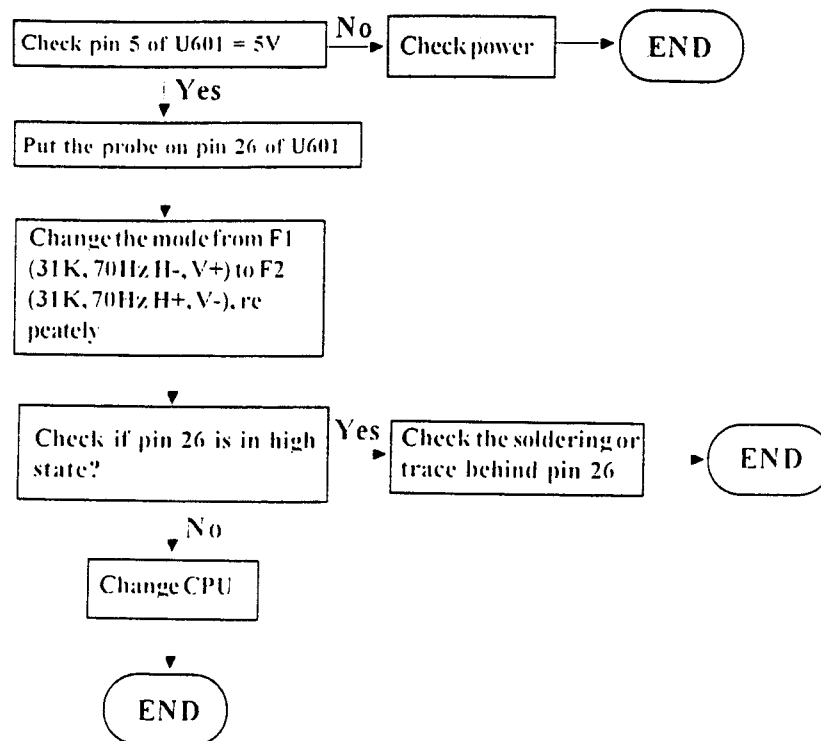


5. During mode change, there is a noisy picture which appears on screen



Note : Pin 20 from U601 is mute signal, active high.

6. Sometimes, a data loss occurs on mode 31Khz & 70Hz



Note: Pin 26 of U601 is used to tell from mode F1 (31K 70Hz H-, V+) and mode F2 (31K 70Hz H+, V-), so, if pin 26 at mode F1 is high state, at mode F2 must be low state and so on.

SERVICE COMPONENTS

Warning: The components that have special important safety characteristics should be replaced only with identical types to those in the original circuit or specified in the parts list. Do not under estimate the safety of the display through improper service.

Abbreviations:

Capacitors:	CD :	Ceramic Disc
	ELEC :	Electrolytic

Resistors:	CF :	Carbon Film
	MOF :	Metal Oxide Film
	VR :	Variable Resistor
	FU :	Fusible
	MF :	Metal Film

Allowance:	F	1%
	G	2%
	J	5%
	K	10%
	M	20%
	P	100% - 0%
	Z	80% - 20%

PARTS LIST

CIRCUIT REF & DESCRIPTION		PART NO.
AS4DP	SET TOTAL ASSY	571414101000
AS4DP	DISPLAY ASSY	571414201000
AS4DP	PACKING ASSY	571414203001
AS4DP	FRONT COVER ASSY	571414301000
AS4DP	BASE ASSY	571414302000
AS4DP	MAIN BOARD ASSY	571414303000
AS4DP	BRACKET ASSY	571414305000
AS4DP	HEAT SINK(D) ASSY	571414306000

CIRCUIT REF.	DESCRIPTION	PART NO.
<u>Capacitor</u>		
C126	220uF M 10V 85 P=5	261001122100
C608	470uF M 10V 85 P=5	261001147100
C208, C212, C631, C167	100uF M 16V 85 P=5	261002110100
C311	2200uF M 16V 85 P=5	261002122200
C211, C302, C637	470uF M 16V 85 P=5	261002147100
C121, C307, C420	100uF M 25V 85 P=5	261003110100
C322, C627	47uF M 25V 85 P=5	261003147000
C169	470uF M 25V 85 P=5	261003147100
C024, C025, C201, C221, C241, C326, C401, C439, C620, C638	10uF M 50V 85 P=5	261005110000
C323, C325, C411, C613, C503, C523, C543, C621, C625, C630	1uF M 50V 85 P=5	261005110800
C309, C406	22uF M 50V 85 P=5	261005122000
C617	2.2uF M 50V 85 P=5	261005122800
C415	0.22uF M 50V 85 P=5	261005122900
C015, C016, C021, C314, C602, C026, C127, C254	1.7uF M 50V 85 P=5	261005147800
C071	100uF M 100V 85 P=5	261008110100
C561	22uF M 100V 85 P=5	261008122000
C072	330uF M 100V 85 P=7.5	261008133100
C155, C433	10uF M 160V 85 P=5	261009110000
C431	4.7uF M 250V 85 P=5	261012147800
C019, C435	0.47uF M 250V 85 P=5	261012147900
C106	150uF M 400V 1IP3(22X35)	262104115100
C106	150uF M 400V 1IP3(25X30)	262104215100
C106	150uF M 400V G1M(25X30)	262504215100
C106	150uF M 400V SMS(25X30)	262704215100
C312	10PF J 50V NPO P=5	271501110000
C615	100PF J 50V NPO P=5	271501110100
C621	270PF J 50V NPO P=5	271501127100
C603, C604	33PF J 50V NPO P=5	271501133000
C203, C217, C218, C223, C622	100PF K 50V Y5P P=5	272001110100
C017, C301, C425, C432, C441, C628	1000PF K 50V Y5P P=5	272001110200
C502	120PF K 50V Y5P P=5	272001112100
C117	1500PF K 50V Y5P P=5	272001115200

CIRCUIT REF.	DESCRIPTION	PART NO.
C522,C542	180PF K 50V Y5P P=5	272001118100
C413	3300PF K 50V Y5P P=5	272001133200
C111	470PF K 50V Y5P P=5	272001147100
C626	4700PF K 50V Y5P P=5	272001147200
C001,C076	330PF K 500V Y5P P=5	272004133100
C563	1000PF K 1KV Y5P P=5	272005110200
C154	150PF K 1KV Y5P P=5	272005115100
C116	560PF K 1KV Y5P P=5	272005156100
C011,C014	0.01uF M 50V Z5U P=5	272101110300
C114,C168,C304,C411, C426,C436,C440,C501, C521,C541	0.1uF Z 50V Y5V P=5	272201110400
C115	0.01uF M 1KV Z5U P=7.5	272105110300
C205,C206,C207,C313, C404	0.1uF Z 50V Y5V P=5	272201110400
C612	170PF J 50V NPO P=5	273101147100
C623,C629	0.0022uF J 50V PE1 P=5	281001122200
C303	0.0017uF J 50V PE1 P=5	281001147200
C112	0.0022uF J 50V PEN P=5	281101122200
C012,C112	0.0022uF J 50V PEN(ECQB) P=5	281111122200
C303	0.0017uF J 50V PEN(ECQB) P=5	281111147200
C418	0.0068uF J 630V PPN P=15	281201168200
C417	5100P J 1.6KV PPS P=20	281308151201
C418	0.0068uF J 630V DTW P=10	281334168200
C416	1uF J 100V MEF P=15	281403110501
C306	0.33uF J 50V MEF(ECQV) P=5	281411133406
C416	1uF J 100V MEF(ECQV) P=5	281413110506
C063	1u J 250V MT	281455010501
C306	0.33uF J 63V MEB P=5	281502133400
C427	0.33uF J 250V MPP P=20	281602133401
C421	0.33uF J 250V PMH P=15	281652133401
C100,C105	0.1uF M AC P=15(KNB1530)	291000010407
C101,C102,C103,C180, C183	2200PF M AC UL/CSA/VDE(CS)	291200022201
C186	3300PF M AC UL/CSA/VDE(CS)	291200033201
C023,C424	5mmx10mm	531400005000
Diode		
D001,D003,D007	1N4148(1A/75V) T	371303107500
D013	7.5mmx10mm	531400007500
D014,D017	1N4148(1A/75V) T	371303107500
D055	15uH J P=12.5	323001015000

CIRCUIT REF.	DESCRIPTION	PART NO.
D056	FUF5405(3A/600V) KINK	371501300609
D057	FUF5404(3A/400V) T	371503300409
D059,D060	1N4002(1A/100V) T	371303100100
D101,D102,D103,D104	RF2005(2A/600V) T	371603200609
D108	1N4936(1A/400V) T	371313100415
D111,D112	PR1007 (1A/1000V)T	372253101020
D124,D145	1N4148(1A/75V) T	371303107500
D147	7.5mmx10mm	531400007500
D148	1N4148(1A/75V) T	371303107500
D151	UF2003(2A/200V) T	371503200220
D152	UF1007(1A/1000V) TAPING	371503101020
D153,D155	UF2003(2A/200V) T	371503200220
D301,D302	1N4148(1A/75V) T	371303107500
D303	1N4936(1A/400V) T	371313100415
D304,D305,D306	1N4148(1A/75V) T	371303107500
D307	7.5mmx10mm	531400007500
D401	1N4148(1A/75V) T	371303107500
D402	FUF4002(1A/100V) T	371503100109
D405	5TLZ47C(5A/1500V)	370502501503
D408	3LU311(3A/600V)	371700300603
D411,D413	1N4936(1A/400V) T	371313100415
D414,D415	1N4148(1A/75V) T	371303107500
D416	1N4936(1A/400V) T	371313100415
D417,D419	1N4148(1A/75V) T	371303107500
D420	10mmx10mm	531400010000
D422,D503,D523,D543	1N4148(1A/75V) T	371303107500
D601,D602,D603,D604		
D605,D606	7.5mmx10mm	531400007500
ZD601	1/2W HZ3A2(2.6V-2.8V) T	375003031201
ZD021	1/2W HZ5C2(5.0V-5.2V) T	375003053201
ZD602	1/2W HZ9C3(9.3V-9.7V)T	375003093301
ZD402,ZD603	1/2W HZ12A2(11.9V-12.4V) T	375003121201
ZD501,ZD521,ZD541	1/2W HZ36-2(35.3V-36.8V) T	375003360201
ZD401	1/2W RD5.1EB2(4.97V-5.18V) T	375103051202
<u>Coil</u>		
L411	200uH	321200000503
L151	17uH	321200001302
L101	20mH 1V	321300100602
L502,L522,L542	5.6uH 1/2 P=12.5	323001056800
L202,L501,L521,L541	8.2uH 1/2 P=12.5	323001082800
L055,L153,L155	5mmx10mm	531400005000

CIRCUIT REF.	DESCRIPTION	PART NO.
L201, L221, L241, L401, L562	12.5mmx10mm	531400012500
<u>Transistor</u>		
Q001	YTF630	362300063003
Q303	2SA673AC(Ic:-500mA/Vce:-50V)	361100067301
Q017, Q020, Q418, Q424, Q425, Q607, Q610	2SA733P(Ic:-100mA/Vce:-50V)	361100073300
Q015	2SA1020Y	361100102003
Q011, Q016, Q018, Q019 Q024, Q106, Q301, Q404, Q405, Q406, Q419, Q449, Q450, Q455, Q472, Q601, Q604, Q605, Q606, Q608, Q502, Q522, Q542	11945P(Ic:-200mA/Vce:-50V)	361300094501
Q302	2SC1213AC(Ic:-500mA/Vce:-50V)	361300121301
Q012, Q021, Q609	2SC1815GR(Ic:-150mA/Vce:-50V)	361300181500
Q422	2SC5149(Ic:-8A/Vce:-600V)	361300514903
Q421	2SD667C(Ic:-1A/Vce:-100V)	361400066701
Q426	2SD669AC(Ic:-1.5A/Vce:-160V)	361400066901
Q101	2SK1118(Ic:-6A/Vds:-600V)	361500111803
Q452	BF422(Ic:-50mA/Vce:-250V)	361600042200
Q451	BF423(Ic:-50mA/Vce:-250V)	361600042300
Q423	YTA630(Ic:-10A/Vds:-200V)	362301063003
Q501, Q521, Q541	KSC2682O(Ic:-100mA/Vce:-180V)	362360268214
<u>Resistor</u>		
R255, R401, R402, R502, R522, R542, R663	1/8W 100ohm J T52	211003010100
R300, R305, R315, R322, R324, R325, R334, R403, R409, R422, R451, R496, R641, R654, R655, R662, R679	1/8W 1K J T52	211003010200
R030, R031, R206, R303, R309, R405, R447, R666 R449, R455, R458, R460, R466, R601, R603, R613, R614, R625	1/8W 10K J T52	211003010300
R312, R333, R417, R418, R440, R433, R444, R446, R448, R468, R674	1/8W 100K J T52	211003010400

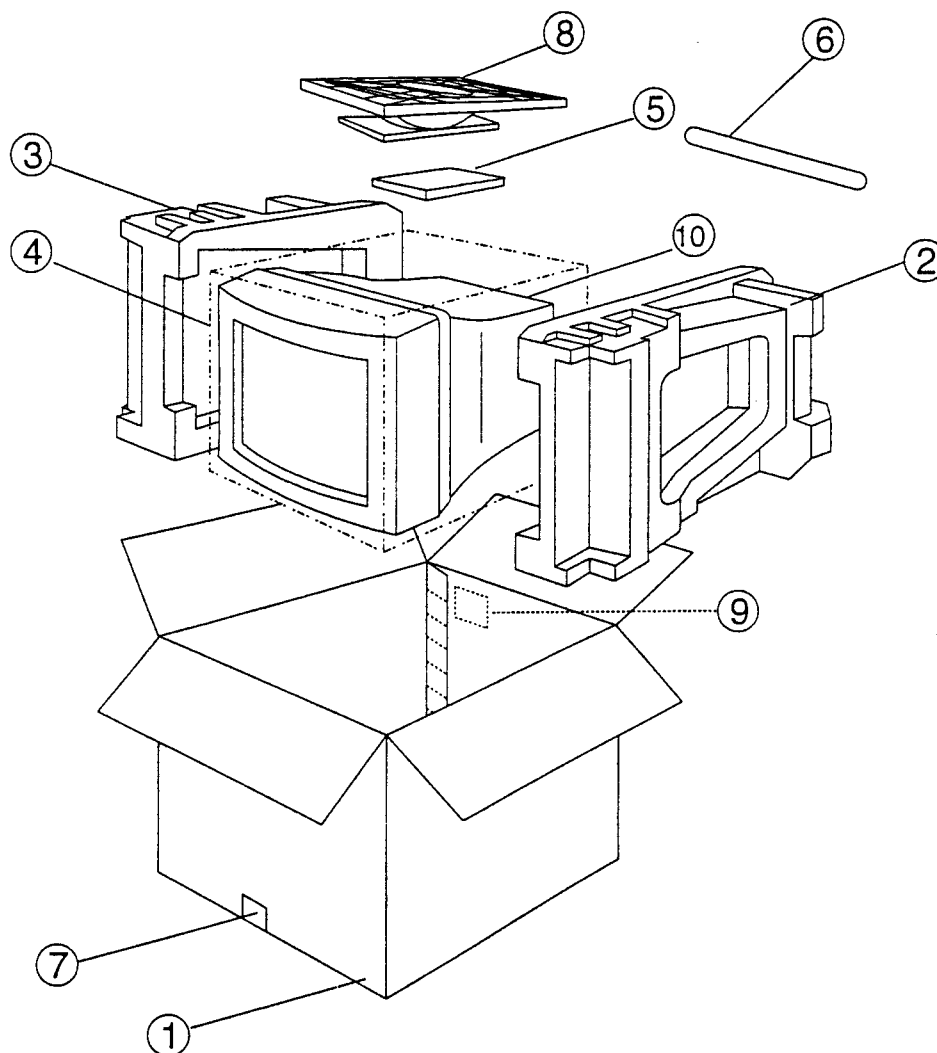
CIRCUIT REF.	DESCRIPTION	PART NO.
R443	1/8W 130K J T52	211003013400
R618	1/8W 150K J T52	211003015400
R453,R497,R602	1/8W 1M J T52	211003010500
R503,R523,R543	1/8W 120ohm J T52	211003012100
R411	1/8W 1.2K J T52	211003012200
R650	1/8W 12K J T52	211003012300
R301	1/8W 150ohm J T52	211003015100
R248,R429,R463,R640	1/8W 1.5K J T52	211003015200
R615	1/8W 15K J T52	211003015300
R317	1/8W 1.5M J T52	211003015500
R653	1/8W 180ohm J T52	211003018100
R352	1/8W 180K J T52	211003018400
R018,R439	1/8W 200ohm J T52	211003020100
R461,R664,R521	1/8W 2K J T52	211003020200
R329,R404,R415,R419, R420,R304	1/8W 20K J T52	211003020300
R341	1/8W 200K J T52	211003020400
R600	1/8W 220ohm J T52	211003022100
R226,R652	1/8W 2.2K J T52	211003022200
R407,R651,R665,R029	1/8W 22K J T52	211003022300
R308	1/8W 2.2ohm J T52	211003022800
R316,R431,R677,R678	1/8W 2.4K J T52	211003024200
R457,R610,R681	1/8W 24K J T52	211003024300
R660	1/8W 240K J T52	211003024400
R311,R318	1/8W 270ohm J T52	211003027100
R319	1/8W 27K J T52	211003027300
R428,R632,R634,R636	1/8W 270K J T52	211003027400
R064,R661,R672	1/8W 3K J T52	211003030200
R617	1/8W 470K J T52	211003047400
R467,R671,R673, R062,R332,R668	1/8W 30K J T52	211003030300
R205,R209,R225,R245	1/8W 390ohm J T52	211003039100
R061,R313	1/8W 3.9K J T52	211003039200
R408,R646,R657	1/8W 43K J T52	211003043300
R302,R413,R628,R629, R630,R631	1/8W 470ohm J T52	211003047100
R675,R604,R611,R612, R642,R645,R647,R648, R658	1/8W 4.7K J T52	211003047200
R020,R025,R041,R608	1/8W 47K J T52	211003047300
R626,R659,R430		
R462	1/8W 510ohm J T52	211003051100

CIRCUIT REF.	DESCRIPTION	PART NO.
R656	1/8W 51K J T52	211003051300
R501,R521	1/8W 56ohm J T52	211003056000
R495	1/8W 560ohm J T52	211003056100
R616,R621,R637,R670, R682	1/8W 5.6K J T52	211003056200
R019,R306,R310,R432	1/8W 56K J T52	211003056300
R609	1/8W 680ohm J T52	211003068100
R605	1/8W 6.8K J T52	211003068200
R204,R224,R412	1/8W 68K J T52	211003068300
R201,R207,R221,R227, R241,R247	1/8W 75ohm J T52	211003075000
R060	1/8W 7.5K J T52	211003075200
R607	1/8W 75K J T52	211003075300
R649	1/8W 82ohm J T52	211003082000
R669	1/8W 820ohm J T52	211003082100
R406,R456,R644,R667	1/8W 8.2K J T52	211003082200
R414	1/8W 9.1K J T52	211003091200
R022,R023,R123,R514, R534,R554,R563	1/4W 100ohm J T52	211103010100
R028,R032,R128,R137, R140,R452	1/4W 1K J T52	211103010200
R026,R126,R504,R524, R544	1/4W 10K J T52	211103010300
R036,R037,R454	1/4W 100K J T52	211103010400
R434	1/4W 1ohm J T52	211103010800
R119,R565	1/4W 150K J T52	211103015400
R507,R527,R547	1/4W 1.8K J T52	211103018200
R034	1/4W 200ohm J T52	211103020100
R021	1/4W 2K J T52	211103020200
R143	1/4W 2.2K J T52	211103022200
R147	1/4W 220K J T52	211103022400
R035	1/4W 27ohm J T52	211103027000
R039,R040,R124	1/4W 36ohm J T52	211103036000
R113	1/4W 3.6K J T52	211103036200
R138	1/4W 36K J T52	211103036300
R426	1/4W 47ohm J T52	211103047000
R118,R120	1/4W 47K J T52	211103047300
R141	1/4W 470K J T52	211103047400
R541	1/4W 56ohm J T52	211103056000
R017	1/4W 5.6K J T52	211103056200
R024,R038	1/4W 68ohm J T52	211103068000
R117	1/4W 9.1K J T52	211103091200

CIRCUITREF.	DESCRIPTION	PART NO.
R122	1/2W 100ohm J T52	211203010100
R314	1/2W 1ohm J T52	211203010800
R071,R307	1/2W 150ohm J T52	211203015100
R063	1/2W 150K J T52	211203015400
R635	1/2W 20ohm J T52	211203020000
R424	1/2W 300ohm J T52	211203030100
R013	1/2W 47K J T52	211203047300
R101	1/2W 470K J T52	211203047400
R676	1/8W 3K 1% T52	212003030200
R423	1W 10ohm J P=12.5	212501010000
R435	1W 210ohm J P=12.5	212501024100
R027	1W 0.51ohm J P=12.5	212501051900
R153,R154	2W 1K J P=15	212601010200
R425	2W 0.68ohm J P=15	212601068900
R331	2W 120ohm J P=15	212601012100
R680	2W 150ohm J P=15	212601015100
R160	2W 2ohm J P=15	212601020800
R505,R506,R525,R526, R545,R546	2W 2.7K J P=15	212601027200
R127	2W 0.33ohm J P=15	212601053900
R001,R076	3W 100ohm J P=20	212701010100
R129	3W 10K J P=20	212701010300
R131	3W 2.2K J P=20	212701022200
R105,R106	3W 33K J P=20	212701033300
R102	14ohm 2322 662 96702	231000114002
R104	4A 5ohm SCK-054	231104050804
R016	7.5mmx10mm	531400007500
R323	15mmx10mm	531400015000
<u>Transformer</u>		
T001	430mH	321200001702
T101	POWER	331000001302
T404	FBT	331100000905
T401	H-DRIVE	331300000302
<u>IC</u>		
U201	TLS123N	381000023307
U301	LA7837	381300083709
U602	LA7851	381400085109
U001	HA17384PS	382500084201
U102	UC3842N	382500084213
U605	UPC78L05J	382700080502

CIRCUIT REF.	DESCRIPTION	PART NO.
U401	LM324N	383000032405
U101	TLP721F	383500072103
U603	CAT24C02P	384300040231
U601	WT6014 REV. 2	384600101416
<u>VR</u>		
VR601	B 10K M D=6 V 0.2W MF	221000010300
VR051	B 2K M D=6 V 0.2W MF	221000020200
VR201, VR221, VR501, VR521, VR541	B 50K M D=6 V 0.1W CF	221500050300
VR151	B 2K M D=6 H 0.1W CF	221400020200
VR403	B 50K M D=6 H 0.1W CF	221400050300
VR402	B 500ohm M D=9 V S=9.5mm	223003050100
<u>Other</u>		
V501	0.28mm M344FA83X03 AS	411402802004
V501	0.28mm M344FA63X03 LR	411402801904
W102	VHR3 1617#22L=320mm 6*6	531000500608
F101	3A 250V S-B 5x20 U/L/CSA	471100030001
X601	8MMIZ	473100080000
S101	0714-CR7 SCREW	450042000202
SW1	1P1T 6A/250V U/L/CSA/VDE	431101100103
SW601, SW602, SW603	2P1T V S=3.85mm (SKTHLN1520-QB)	431602100200
S502	0330 5500 44	450010000205
S201	2.5mm 10PIN	452102501000
S102	3.96mm B3P-VII SECOND PIN CUT	452163960301
S104	5-7.5mm 2PIN RTB-1.5-2	452205750201
S404	5-7.5mm 6PIN JS-1103-6	452205750606
S109	2.54mm 2PINx1ROW	452802500200
S601	2877#26 7P L=250mm	516070002500

PACKING PARTS LIST



No.	Description	Part No.	No.	Description	Part No.
1.	Carton 4Dp	820100360001	6.	AC Power Cord (UL,CSA1.8M)	533000312001
2.	Polyure (R)	810100140001	7.	Tape Opp	820300010001
3.	Polyure (L)	810100130001	8.	Swivel Base	571400330200
4.	PE Bag	810200120002	9.	Label Bar Code	820600040001
5.	User's Manual	820414145504	10.	B/C Label	740301190001

Return Material Authorization Procedure

The following Return Material Authorization Procedure must be adhered to when the product is being returned for service.

RMA procedure :

1. In the unlikely event of monitors requiring service. Each distributor is required to fill a Return And Maintenance Information (RAMI) Sheet and send it to the fax (intl.) to obtain a Return Authorization (R.A.) Number.

The following fields must be filled in each *RAMI* sheet.

- Your company name in the " Company " filed and your name in the " From " filed.
- Your company telephone No. in the " Tel. " filed and fax No. in the " Fax " filed.
- If an R.A. NO. is being requested for more then ten units on each *RAMI* SHEET.
- Enter the repaired month in the " R.Month " field.
- Your company address in the " Addr. " filed. (this will be the return address for the goods)
- The " Model " & " Serial No. " is for each monitor.
- If the defective component is known the " Defect part " and " Symbol and Description " filed can be filled in.
- Enter the date your fax the *RAMI* sheet in " Date " field.
- Enter total page of the *RAMI* sheet to " Page " field.
- Assist our quality and service engineers by describing the failure condition and fault description for each monitor.

Tick the appropriate boxes and fill in the code number for each monitor. For the meaning of each code number please refer to the **Fault Code Number & Description Table**.

2. Upon headquarters receives the *RAMI* form, an R.A. number will be assigned this information will be passed to the service centre and an approved copy resent to the distributor.

3. Distributors should sent the monitor(s) freight prepaid to the service centre with the copy of the approved *RAMI* form passed to the service centre and an approved copy resent to the distributor.

4. Monitor(s) must be shipped on original packaging material that will give equivalent protection during return shipment.

5. Repaired monitor(s) will be returned to the customer, freight prepaid within ten (10) working days being received at the service centre.

6. For out of warranty monitors, distributors will pay for repair and for shipping both ways.

Fault Code Number & Description Table.

No.	Code No.	Fault Description	No.	Code No.	Fault Description
1	B00	No raster(LED on,no high voltage)	2	B01	Screen Jitter
3	B02	Screen waving	4	B03	Screen flicker
5	B04	Screen noise	6	B05	Brightness unadjustable
7	B06	Brightness too high	8	B07	Brightness is not sufficient
9	B08	Frequency noise	10	E00	No Power(LED off,no high voltage)
11	E01	Hold down	12	H00	No Hor. output (Only vert. line on screen)
13	H01	Hor. no sync. (Screen shift)	14	H02	Small Hor. width
15	H03	Large Hor. width	16	V00	No vert. output(Only hor. line on screen)
17	V01	Vert. no sync.(Screen up and down moving)	18	V02	Small vert. size
19	V03	Large vert. size	20	V04	Vert. jumping
21	V05	Vert overlapping	22	V06	VR(Variable resistor) unadjustable
23	P00	No picture(LED on, high voltage on)	24	P01	Missing red color(Only cyan color)
25	P02	Missing green color(Only purple color)	26	P03	Missing blue color(Only yellow color)
27	P04	Only red color(Red retrace line on screen)	28	P05	Only green color(Green retrace line on screen)
29	P06	Only blur color(Blue retrace line on screen)	30	P07	Retrace line (White color on screen)
31	P08	Poor video	32	P09	Poor focus

Spare Parts Application

Page : of

Order No. : Date :

To :

Attn :

From :

Company name & Address :

Tel No : Fax No :

Service Center	Date :
IOCO No. :	
Responsible by :	
Ship Via :	
E.T.D. :	
Parts Location :	
Freight charge : ☐	☐ Customer
*This block is used Don't fill in, Please	

No.	Model	Location	Parts No. / Description	Q'ty	*U/P	Warranty		Remark
						in	out	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								

Maintenance Information

(RAMI Sheet)

Tel :

Fax : _____

To :

Attend :

$$\vdots$$

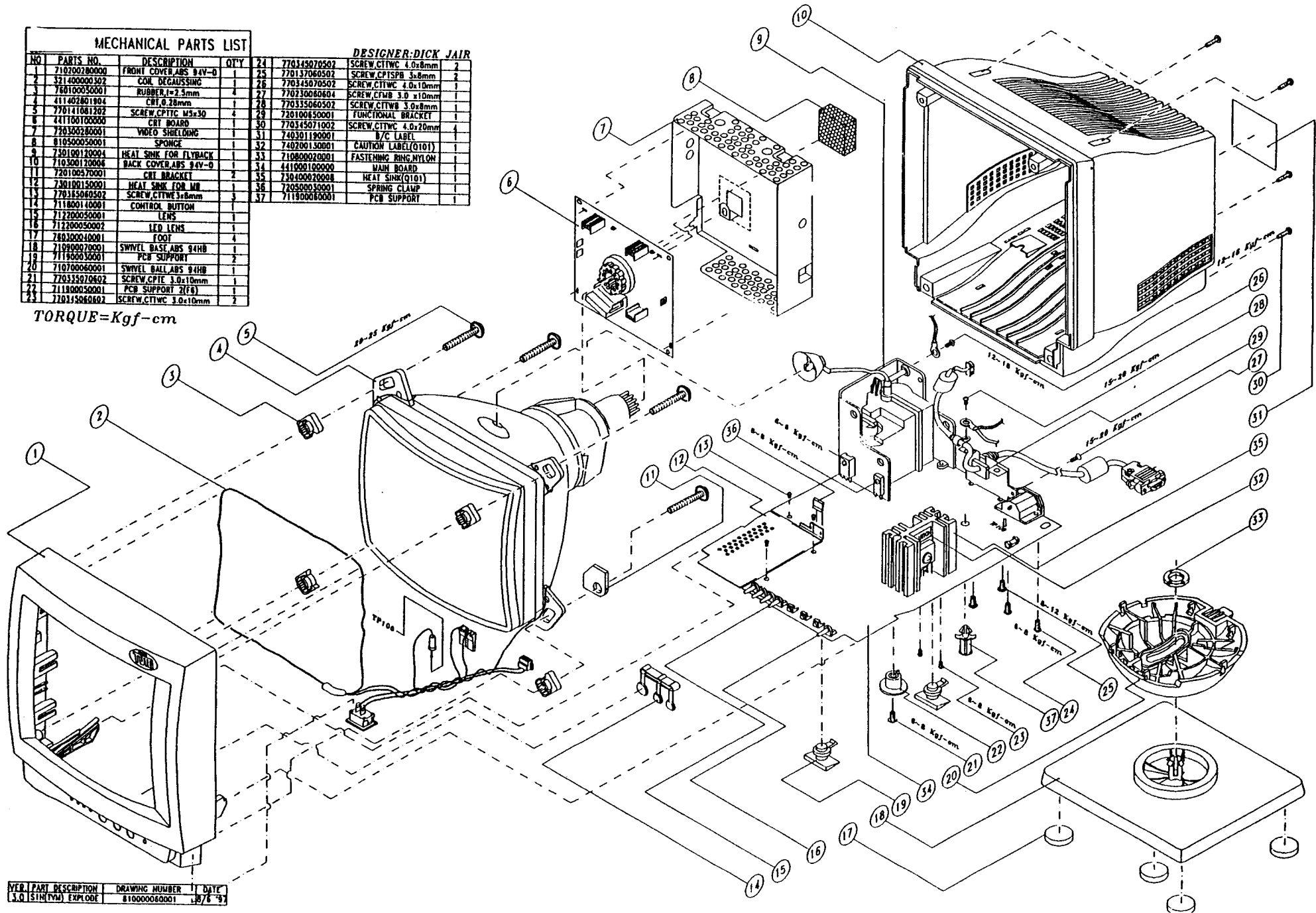
Company :	Tel. :
From :	Fax. :
R.A. No. :	Addr. :
R.Month :	Page :

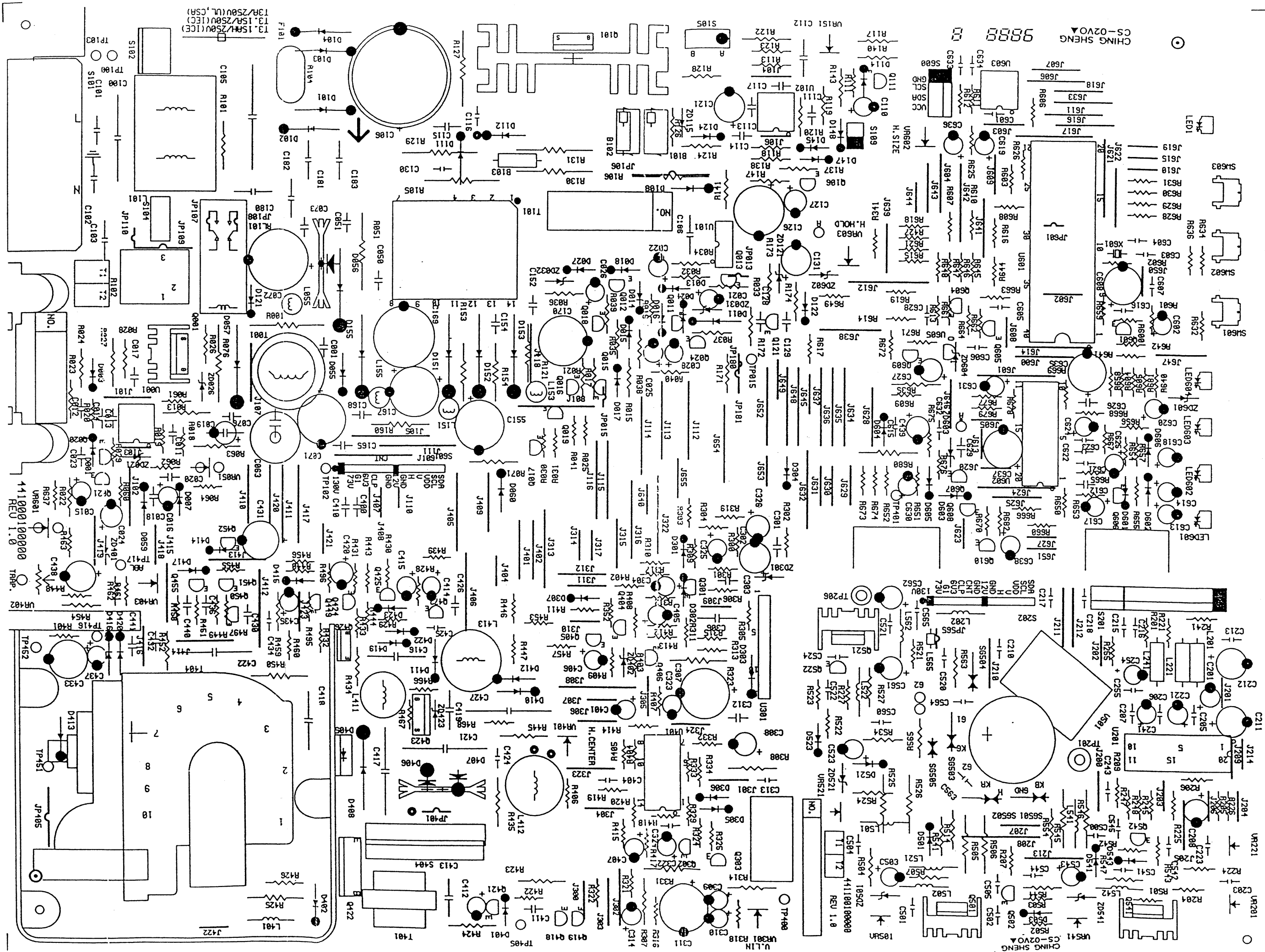
No.	Model	Serial Number	Symbol & Descriptions (or Code Number)	Defect Parts List	Remark

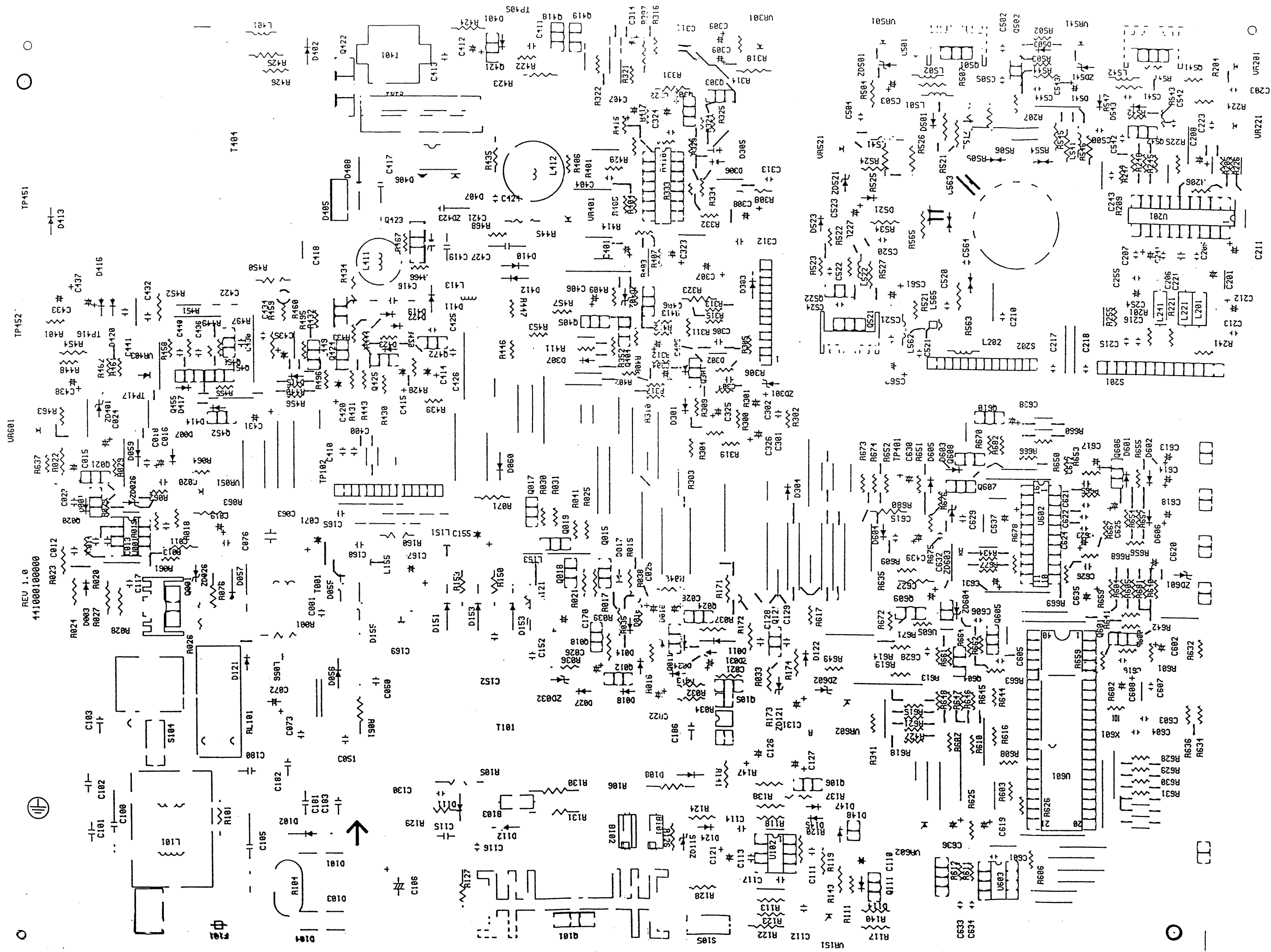
MECHANICAL PARTS LIST

NO	PARTS NO.	DESCRIPTION	QTY	DESIGNER: DICK JAIR	
1	7101000780000	FRONT COVER,ABS 94V-0	1	24 770145070502 SCREW,CITWC 4.0x8mm	2
2	321400000302	CON. DEGAUSSING	1	25 770137060502 SCREW,CPTSPB 3.8mm	2
3	760100050001	RUBBER,1x2.5mm	4	26 770145070502 SCREW,CITWC 4.0x10mm	1
4	411402801904	CR1,0.28mm	1	27 770230060604 SCREW,CFMB 3.0 x10mm	1
5	770141081302	SCREW,CPTTC M3x30	4	28 770335060502 SCREW,CITWC 3.0x8mm	1
6	441100100000	CR1 BOARD	1	29 720100650001 FUNCTIONAL BRACKET	1
7	720300200001	VIDEO SHIELDING	1	30 770145071002 SCREW,CITWC 4.0x20mm	1
8	810500050001	SPONGE	1	31 740301190001 B/C LABEL	1
9	720100120004	HEAT SINK FOR FLYBACK	1	32 740200130001 CAUTION LABEL(Q101)	1
10	710300120004	BACK COVER,ABS 94V-0	1	33 710800020001 FASTENING RING,NYLON	1
11	720100570001	CR1 BRACKET	2	34 441000100000 MAIN BOARD	1
12	720100150001	HEAT SINK FOR MR	1	35 720400070008 HEAT SINK(Q101)	1
13	770185060502	SCREW,CITWC 3x8mm	3	36 720500050001 SPRING CLAMP	1
14	711800140001	CONTROL BUTTON	1	37 711900060001 PCB SUPPORT	1
15	712200050001	LENS	1		
16	712200050002	LED LENS	1		
17	780300040001	FOOT	4		
18	710900070001	SWIVEL BASE,ABS 94HB	1		
19	711900030001	PCB SUPPORT	2		
20	710700060001	SWIVEL BALL,ABS 94HB	1		
21	770335070402	SCREW,CPTC 3.0x10mm	1		
22	711900050001	PCB SUPPORT 2(F6)	1		
23	770335060502	SCREW,CITWC 3.0x10mm	2		

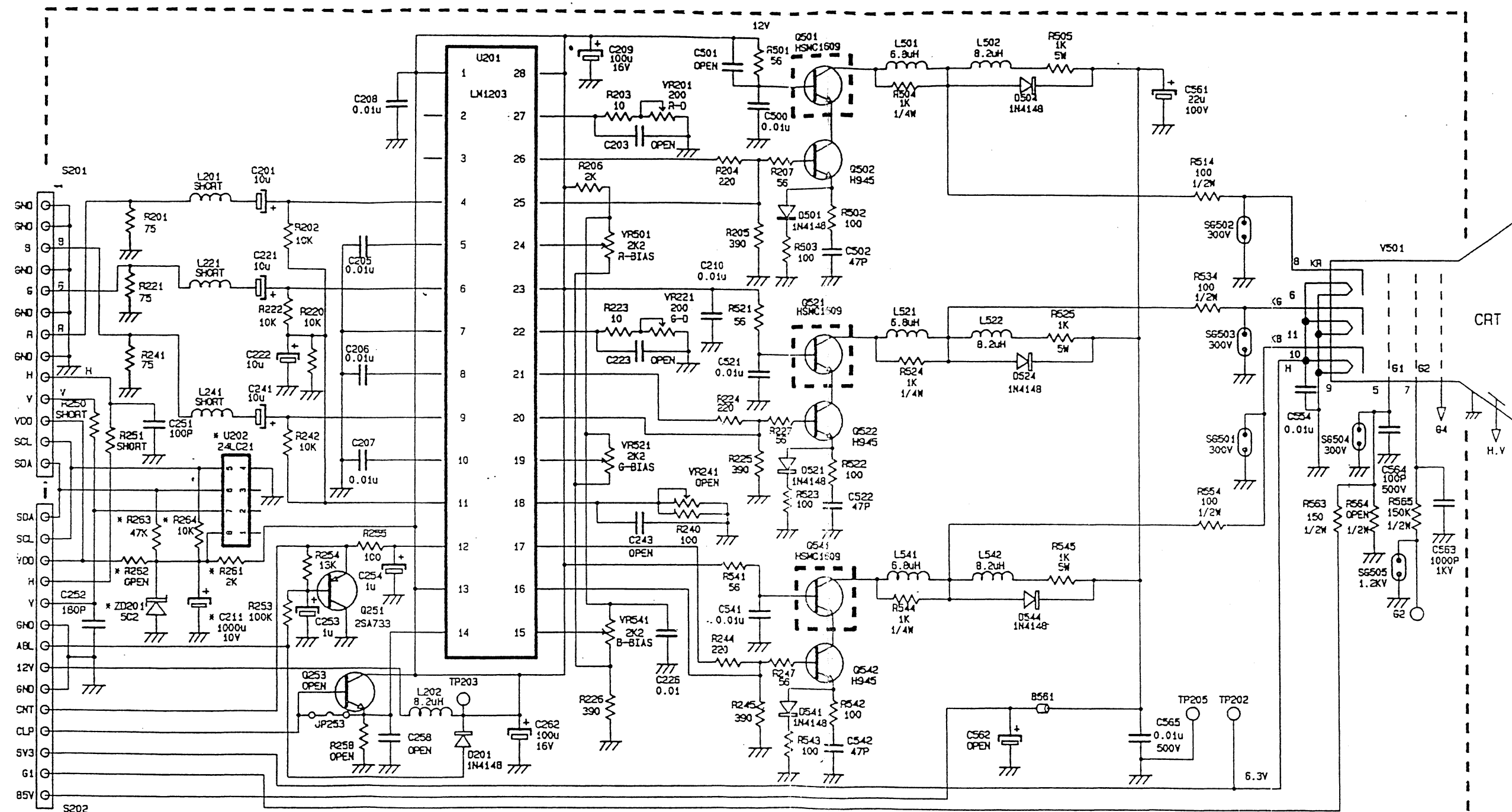
TORQUE = Kgf-cm







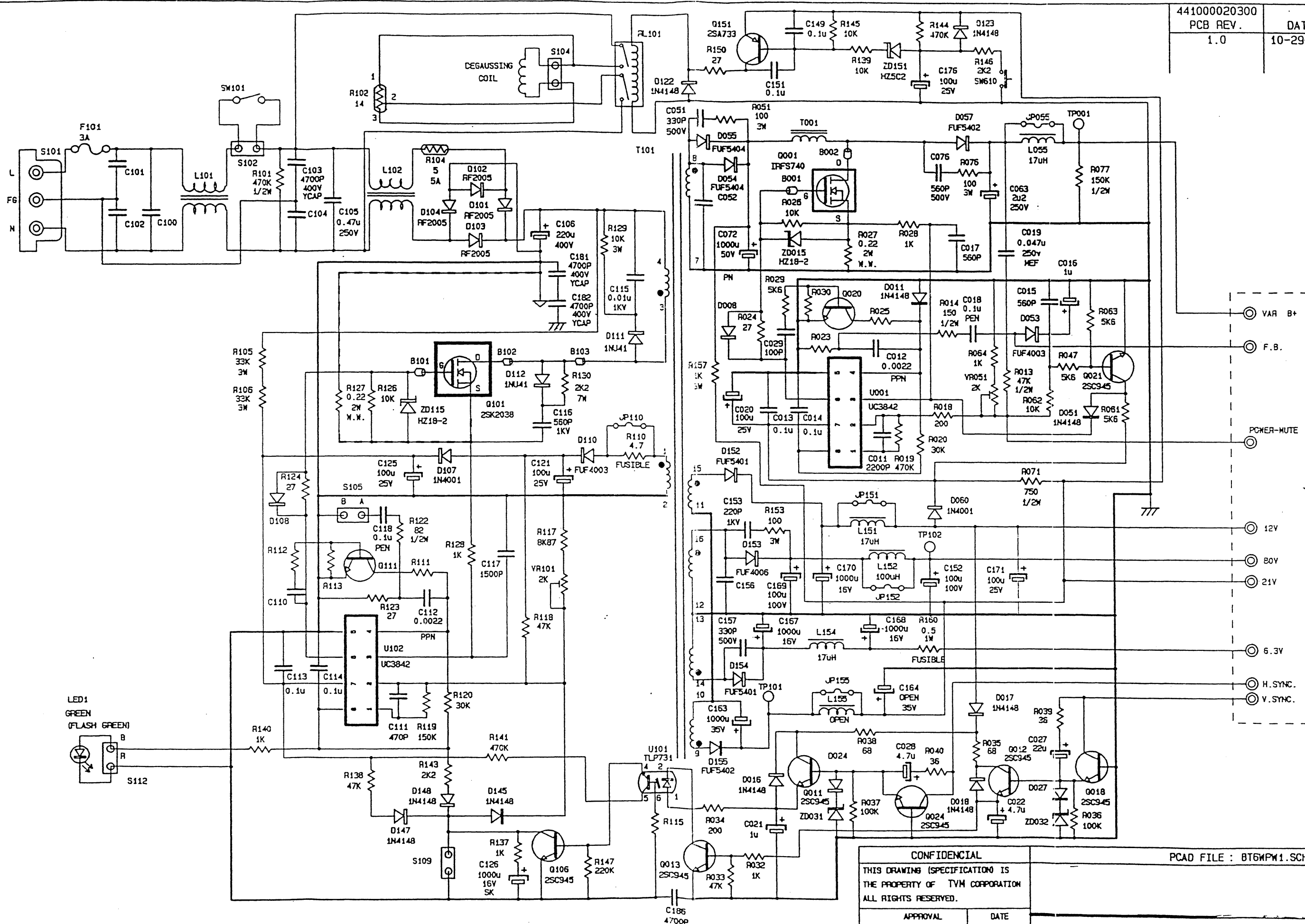
441100010100 PCB REV.	571500430400 ASS'Y REV.	DATE
2.1	2.0	06-21-'96
2.1		10-29-'96



NOTE: THE COMPONENTS WITH * * * MARK ARE FOR DOC MODEL ONLY.

- NOTE:
1. THE UNIT OF RESISTANCE * OHM * IS OMITTED (K=1000 OHMS AND M=1MEG OHMS)
 2. ALL RESISTORS ARE * 1/8 W * AND * 5% * UNLESS OTHERWISE NOTED.
 3. ALL CAPACITORS RATING ARE * 50V * UNLESS OTHERWISE NOTED.

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APPROVAL	DATE		
DRAWN L. S. HO	10-29-'96		
CHECKED	10-29-'96		
ISSUED	10-29-'96		
MANAGER			
		SIZE A3	MODEL
		DATE	NO. 5400010033000
		SCALE	SHEET 1 OF 1



NOTE :
1. THE UNIT OF RESISTANCE * OHM * IS OMITTED (K-1000 OHMS AND M-1MEGS OHMS)
2. ALL RESISTORS ARE * 1/4 W * AND * 5% * UNLESS OTHERWISE NOTED.
3. ALL CAPACITORS RATING ARE * 50V * UNLESS OTHERWISE NOTED.

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THIS DRAWING (SPECIFICATION) IS THE PROPERTY OF TVM CORPORATION ALL RIGHTS RESERVED.					
APPROVAL	DATE	10 50 30 POWER SCHEMATIC			
DRAWN L. S. HO	10-29-'96				
CHECKED <i>Jacky</i>	<i>10-29-'96</i>	SIZE A3	MODEL	DWG. NO.	REV 1
ISSUED <i>Paul Lee</i>	<i>10-29-'96</i>	SCALE		SHEET 1 OF 1	
MANAGER					